IRON TRADE REVIEW
Registered U. S. Patent Office
The Authority of Industry *National and International*

Vol. LXXIV Cleveland, June 12, 1924 *No. 24*

Dullness Is Slightly Modified

Steel Corporation Unfilled Orders May 31 Lowest Since November 1914—Ingot Production Last Month Was 24.1 Per Cent Under April—Pig Iron Buying More General With Several Hundred Thousand Tons Placed Last Week

SEVERAL traces of improvement in buying activity serve to break the monotony of a dull and dragging steel market. Expectations of heavier buying soon are keeping producers in a more cheerful frame of mind than lean current bookings, in themselves, would warrant. Further indications point to the market being near its lowest ebb.

Oil tankage demand continues to revive and from 18,000 to 20,000 tons is before builders. Of this fully 15,000 tons represents new wants, the leading lot being 7500 tons for the Marland Refining Co.

A slightly lower figure is shown by IRON TRADE REVIEW composite of fourteen leading iron and steel products this week. The index is $40.06 as against $40.84 last week.

How tightly new buying has been choked off until it has assumed abnormal proportions is shown by the unfilled orders for the Steel corporation in May. At the end of May the unshipped business of the leading producer, totaled 3,628,089 tons, the lowest point since November 1914, and even was 12 per cent under the low point of the depression of 1921. Only twice since 1912 have the unfilled bookings been so small.

Output At Low Mark

A further measure of the precipitate drop in operations in the April-May period is supplied by the production of steel ingots in the latter month. On an average daily basis May showed a loss of 24.1 per cent which with the 23.6 per cent decline in April, means a shrinkage in 60 days of approximately 39 per cent from the recent high point. From a record annual rate of 50,000,000 tons in March, steelworks output had dropped to approximately 30,270,000 tons per year in May.

On the all-May basis, the country was making steel ingots at about 58 per cent of total capacity. Chicago works are down to 55 per cent this week while in the Pittsburgh area steelmaking operations are not much over 40 to 45 per cent. In the Mahoning valley, independent works are engaged at the lowest rate since July 1921. Finishing mills, however, continue to run at a higher rate than the steel works due to stocks of raw steel converted. Pipe mills are maintaining 65 to 70 per cent and tin plate plants about as much.

Conspicuous in the railroad news of the week, because it is exceptional, is the revival by the Missouri Pacific of an inquiry for 2000 freight cars. Buying of track fastenings is fair. The Chesapeake & Ohio finally has placed 11,000 tons of steel for 1000 cars.

New Work Expands

The improvement reported last week in building steel awards and inquiry has been expanded. Jobs awarded in the week number at least 40 totaling 26,658, the highest in five weeks. Reappearance of railroad bridge work is a feature with about 7000 tons placed or in final negotiation. At Philadelphia, bids are asked on 11,000 tons for the first unit of the Broad street subway. New York is proceeding to bring out 70 new schools as plans are prepared and 7000 tons of this work already is in the market. The first construction work for the new Cleveland union station has reached the market.

Price margins which have existed between the schedules of the Steel corporation mills and of the independents on certain products probably have been eliminated. The former now is meeting as conditions require, the $4 per ton lower figure on blue annealed, black and galvanized sheets which the independents have been naming for some time. In plates, shapes and bars Pittsburgh mills are holding the open price of 2.20c Pittsburgh with at least $1 lower to the preferred list. Fresh concessions in bands are reported.

Iron Buying Heavier

More general buying of pig iron was done the past week than in at least three months. Selling interests of Cleveland closed 50,000 tons, at New York 40,000 tons and bookings at Pittsburgh, Buffalo, St. Louis and other distributing centers were much heavier. Heating apparatus and sanitary ware manufacturers have been the highest buyers taking possibly 100,000 tons. The recent estimate of 60,000 tons purchased by the American Radiator Co. apparently has been exceeded. Of this, 40,000 tons was credited to eastern plants, round lots for Ohio, Detroit and southern branches and now 15,000 to 20,000 tons is wanted for the St. Louis district.

The principal transactions in steelmaking iron were 20,000 tons of basic sold by the Ford furnace to a northern Ohio steelmaker and two lots of 10,000 tons of the same grade closed at St. Louis and Pittsburgh.

Business Trend and Chart Section Page 1553

The Reader's Page

Contents, June 12, 1924

MARKET SECTION

General Market Review....1529
Domestic Market Report....1531-1543
Price Tables....1532, 1533, 1586, 1590, 1592
Foreign Market Reports....1545
Editorials....1550, 1551
Business Trend Charts....1553-1 56

ENGINEERING SECTION

How English Test Big Forgings....1557
Special Optical Instruments to Examine Core.
Belgian Steel Works Now Fully Restored—By Gustave Trasenter....1559
Heat Treating—Its Principles and Applications—By Charles H. Fulton, Hugh M. Henton and James H. Knapp....1560
Chapter VII—Carburizing and Case Hardening (Continued).
Labor Saving Machinery Adopted—By G. H. Charls....1563
Business Advancing as a Profession—By W. D. Malott....1564
Increases Steelmaking Capacity—By E. C. Boehringer....1566
Maintaining Down Pour Ladles—By S. R. Robinson....1568
Runaway Crane Is Salvaged Unharmed....1569
Reviews of New Books....1570
Oil Refining Plant Mounted on Wheels....1571

GENERAL NEWS SECTION

1924 Tax Law Analyzed....1573
Here and There in Industry....1577
Men of Industry....1578
Obituary....1579
Machinery Market Report....1582
Crane Awards and Inquiries....1583
Business Changes....1584
Construction and Enterprise....1585, 1586, 1588

Britain Welcomes Americans

LEADING industries of Great Britain, in iron and steel and engineering, send greetings to American manufacturers through special pages in this issue of Iron Trade Review. The occasion is the British Empire exhibition, now in progress in London, and the purpose is to invite Americans to the exhibits,

British Empire Exhibition Opens at London

to cultivate trade and promote the spirit of international goodwill. This is being done through the medium of a recognized authority in the industries which they represent—a trade paper with an international reputation. The special advertising insert in this issue of Iron Trade Review is a feature of interest in many respects. The fact of British manufacturers advertising in a special way in an American paper also is unique in the annals of trade journalism. It signifies the importance attached to trade journal advertising and Iron Trade Review's leadership in the metalworking industries.

Do You Know That—

Iron and steel producers use annually 22,190,952 gallons of oil and 113,519,324 pounds of grease. IRON TRADE REVIEW'S lubrication survey shows these facts, and also the distribution according to the class of products.

Pig Iron Sales Are Larger, With Radiator Companies Most Active—Prices Still Soft

PITTSBURGH, June 10.—Foundry pig iron activity among the sanitary ware and radiator companies shows a real awakening, the market for steelmaking iron is dead. The United States Sanitary Mfg. Co. bought 1500 tons of No. 2 from a valley merchant at $20, valley. It will buy more next week. The National Radiator Co., Johnstown, bought 1000 tons at $21, Johnstown, and 2000 tons at the same figure, Trenton, N. J. The Pittsburgh Valve, Foundry & Construction Co. closed for a part of its 500-ton inquiry. Several unidentified sales involving single carloads to 500 tons at a time are noted at $19.50 to $20, valley. One valley producer is maintaining $20.50, valley, but reports no sales. The Westinghouse Electric & Mfg. Co. is receiving prices of $20, valley, and less on 2700 tons wanted for its Trafford City plant, 900 tons each of three grades. The Union Radiator Co., Johnstown, wants 1000 tons of No. 2 iron. One hundred and fifty tons of bessemer was sold at $21.50, valley, a single carload was bought by the Westinghouse Electric & Mfg. Co. at $22, Johnstown. The West Penn Steel Co. and the Allegheny Steel Co. are expected to buy basic within two weeks. Prices of $20 to $22.50 valley, now are quoted as basis. One maker reports having sold 10,000 tons of basic to two buyers, including the Edgewater Steel Co. and would not go to $20. It also sold 1500 tons of high silicon foundry iron to two Pittsburgh melters at $20.50 valley. An attractive tonnage of low phosphorus copper-free iron was closed at $28.50, valley. Small lots still bring $29, valley.

Buyers Still Hold Off

Boston, June 10.—While the expected increase in pig iron buying in New England has not yet developed, small tonnage sales continue at about the average rate as in May. Prices are somewhat unsettled but no new low figures have developed during the past week. No. 2X iron (2.25 to 2.75 silicon) is fairly well stabilized at $20, Buffalo, or $24.92, delivered. In the eastern Pennsylvania district while some iron is offered below this figure many sales of the past week have been negotiated at practically the same delivered price, which means about $21.25, eastern Pennsylvania furnace. Sales of the week include one 300-ton lot, one 250-ton lot, and half a dozen ranging between 100 and 200 tons. One Boston consumer is in the market for 2000 tons. A western Massachusetts consumer is expected to place a heavy tonnage during the coming week.

Larger Orders Placed

New York, June 10.—Large individual purchases have featured the pig iron market during the past week. The week's total is the largest in some time, fully 40,000 tons. Considerable other business was placed here, for shipment outside of the immediate territory. The largest buyer was the American Radiator Co., which placed 15,000 tons with the Bethlehem Steel Co. for its Bayonne plant. It is known that the American Radiator Co. also placed 25,000 tons for its Buffalo plant and it is believed that the tonnage for Buffalo was larger. This buyer now is negotiating for additional tonnage. The Pierce, Butler & Pierce Mfg. Corp. has placed a total of about 10,000 tons, representing its requirements over the remainder of the year. Another melter has bought at least 5000 tons for a plant in Pennsylvania. For a plant in Connecticut 2500 tons has been placed. All these orders represent requirements over the rest of the year. The Burnham Boiler Corp. bought 2000 tons. The Chapman Valve Co. placed 2500 tons. A Massachusstts heater company placed a total understood to be around 1000 tons. The Richardson & Boynton Co. is expected to buy 5000 tons. The H. B. Smith Co., Westfield, Mass., is inquiring for 7000 tons. It is expected that the Crane Co., Bridgeport, Conn., will be in the market shortly. Numerous melters are anticipating shipments. In some cases all the iron on third quarter orders will be shipped by the end of July. Some melters who placed third-quarter orders some weeks ago, already have taken all of the tonnage. Prices are not as low as is rumored in some directions. The lowest done in this territory on eastern Pennsylvania iron recently is $20 furnace. Market on eastern iron continues $20 to $21, furnace. The lowest price known to have been done on Buffalo foundry is $19, furnace.

The steamer LANCASTRIAN arrived last week with 5000 tons of continental foundry iron. Part of the cargo was unloaded here and the remainder, at the port of Philadelphia.

Radiator Company's Orders Large

Buffalo, June 10.—The American Radiator Co. has placed orders for at least 52,000 tons of pig iron for its plants throughout the country. Approximately 10,000 tons was purchased from one Buffalo maker for the local plant. Tonnage is understood to have been taken from other makers. The price paid was $19 or lower, probably fractionally below $19, although this is not conceded by the seller. On other inquiry prices of $19 to $20 are quoted. Only one furnace will quote $19 and those holding to the higher figure are getting considerable new business. These prices have been quoted on the lower silicon grades of foundry iron also on basic and malleable. The high silicon foundry grade is quoted from $19.50 to $20.50. Inquiries are pending for about 7500 tons. Production is between 45 and 50 per cent of the district's capacity.

Markets More Active

Cleveland, June 10.—A good, steady buying movement has developed in pig iron, and furnaces represented in the northern Ohio group, with headquarters here, closed for around 50,000 tons, in the aggregate, during the week. Some of them sold more than they produced; all report business in much larger volume than in weeks. The American Radiator Co.'s inquiry for 25,500 tons for its Detroit, Springfield and Buffalo plants has been closed, this being part of its general purchases for the third quarter running to much larger figures, as previously reported. One furnace represented here took around 5000 tons for a Detroit user. Some sales of smaller lots also have been concluded with motor car foundries, the first in a number of weeks, indicating a slight revival in that direction, although the industry still trails in the general buying. Business has not improved to the point where prices have stiffened and in some instances the prices are lower. No. 2 foundry iron can be had from at least one Cleveland maker at $21, furnace, for delivery in the local 50-cent switching area. For outside delivery it is understood $19 has been named in competition. The more common figure in the valley

is $20, and one interest closed for various lots aggregating 5000 tons at this price during the week. Business mostly is for the third quarter; a few small lots have been taken for the fourth quarter at market prices now prevailing. Cleveland sales are relatively small. The Westinghouse Electric & Mfg. Co. had not closed up to Monday on its inquiry for 3000 tons for its Cleveland plant. This is likely to be taken by a local interest this week. Inquiries are good, most of the sellers figuring on 15,000 to 20,000 tons, some of which represents duplicates. Several inquiries are pending for 3000, 4000 and 5000-ton lots. The Richmond Radiator Co. is in the market for around 3000 tons. The principal recent basic sale was a round tonnage to a northern Ohio steelmaker by the Ford furnaces. One seller here closed for 1000 tons in the week at a price figuring to $20, valley.

Inquiries Increasing

Chicago, June 10.—Inquiry for pig iron continues to increase, but it is difficult to close on account of melters' conviction that prices will be still lower. Spot business in northern and malleable foundry iron is going at $22, furnace. One broker quoted $22 for the third quarter and $22.50 for the last quarter on a 500-ton inquiry, and lost the business. Sellers anticipate the third quarter being a soft spot, unless automobile tonnages are released, and for the fourth quarter they see an improvement. The Wellworth Mfg. Co., is inquiring for 1000 tons of malleable and 1200 tons of foundry iron for August and September delivery. Inquiries include two of 1000 tons of malleable each for Michigan and northern Indiana melters. A northern Illinois melter is seeking 1000 tons of foundry iron. A Joliet melter seeks 500 tons of foundry iron for the last half. A Michigan melter is inquiring for 300 tons of southern foundry iron. There are several Chicago inquiries for 500 ton lots. An Illinois melter is seeking 100 tons of charcoal iron which remains at $26, furnace.

Basic Tonnage Closed

St. Louis, June 10.—The principal transaction in pig iron during the past several days was the sale of 10,000 tons of basic by the St. Louis Coke & Iron Co. to an east side melter for June, July and August. It is believed the business was taken at the low point of the recent downward movement. Additional southern iron changed hands, one producer selling 800 tons and another 450 tons, for the third quarter. Northern sales aggregate 650 tons. Inquiry totals more than 20,000 tons, including 15,000 for a radiator manufacturer for its Illinois and Kansas City plants. Accumulations are reported at many producing points, and furnace interests are making strong efforts to secure business. This fact coupled with a decline in orders for finished and semifinished materials leads to the belief that the bottom has not yet been reached. A depressing factor has been the unceasing cold, wet weather. Quotations remain unchanged, but concessions under current schedules have been granted in most sales reported. The St. Louis Coke & Iron Co. has relighted its furnace at Granite City, after having been out of blast for relining since April 14.

Inquiry Is Larger

Cincinnati, June 10.—Increased activity is noted in the pig iron market here, although large sales are few. Inquiry is larger than for several months. Prices continue weak. Northern iron is quoted generally at $20 Ironton, while southern iron ranges from $20 to $21, Birmingham, the former quotation applying to the product of the Tennessee furnaces. Carlot sales of silvery and charcoal irons are noted at current schedules. Inquiries involved close to 10,000 tons of foundry, malleable and bessemer iron. The Pierce, Butler, & Pierce Mfg. Corp. is inquiring for 3000 tons of northern iron for shipment to its plant at Zanesville, O. The Swain-Robinson Co., at Richmond, Ind., wants 1500 tons of foundry iron for the last half, while the Toledo Steel Castings Co., Toledo, O., is inquiring for 150 tons of bessemer. Outstanding sales of the week were 3000 tons of foundry iron to the American Radiator Co., for its Springfield, O., plant. The Toledo Machine Tool Co., is reported to have bought 800 tons of foundry iron for third quarter. The International Harvester Co., bought 300 tons of malleable iron for Springfield, O. The blowing out of the Portsmouth stack of the Wheeling Steel Corp. leaves only three furnaces in blast in the Ironton dis-

(*Concluded on Page* 1536)

Prices Present and Past

Representative market figures yesterday, and for last month, three months ago and one year ago

	June 11, 1924	May, 1924	Mar., 1924	June, 1923
PIG IRON				
Bessemer, valley del., Pitts....	$23.26	24.06	24.86	30.27
Basic, valley	20.00	20.70	22.00	27.35
Basic, eastern del., eastern Pa..	**20.75**	20.75	21.50	28.14
*No. 2 foundry, del. Pitts.....	21.26	22.66	24.26	29.52
No. 2 foundry, Chicago	22.00	22.80	24.50	31.25
*Southern No. 2, Birmingham..	20.00	21.65	23.00	26.75
*Southern Ohio, No. 2, Ironton	20.00	22.50	23.50	28.25
**No. 2X, Virginia furnace	25.50	25.50	26.00	28.00
**No. 2X, eastern, del. Phila....	21.76	22.60	24.13	28.25
Malleable, valley	20.00	21.30	22.50	30.60
Malleable, Chicago	22.00	22.80	24.50	31.25
Lake Superior charcoal, Chicago	**29.04**	29.04	29.04	36.65
Gray forge, val., del. Pittsburgh	20.76	23.26	24.26	29.02
Ferromanganese, del., Pitts.	**112.29**	112.29	112.29	129.79
SEMIFINISHED MATERIAL				
Sheet bars, bessemer, Pittsburgh	40.00	40.60	42.50	42.90
Sheet bars, open-hearth, Pitts....	40.00	40.60	42.50	42.90
Billets, bessemer, Pittsburgh....	38.00	39.20	40.00	42.90
Billets, open-hearth, Pittsburgh..	38.00	39.20	40.00	42.90
FINISHED MATERIAL				
Steel bars, Pittsburgh	2.20	2.25	2.40	2.40
Steel bars, Chicago	2.25	2.35	2.50	2.50
Steel bars, Philadelphia	2.52	2.57	2.67	2.745

	June 11, 1924	May, 1924	Mar., 1924	June, 1923
FINISHED MATERIAL (Continued)				
Iron bars, Philadelphia	$2.47	2.47	2.57	2.72
Iron bars, Chicago mills	2.25	2.28	2.40	2.60
Beams, Pittsburgh	2.20	2.25	2.50	2.50
Beams, Philadelphia	2.42	2.42	2.62	2.82
Beams, Chicago	2.45	2.45	2.60	2.60
Tank plates, Pittsburgh	2.15	2.25	2.40	2.50
Tank plates, Philadelphia.....	2.32	2.42	2.57	2.845
Tank plates, Chicago	2.45	2.45	2.60	2.60
Sheets, blk., No. 28, Pittsburgh	3.65	3.65	3.75	3.85
Sheets, blue anl., No. 10, Pitts.	2.80	2.80	2.95	3.00
Sheets, galv., No. 28, Pittsburgh	4.80	4.80	4.90	5.00
Wire nails, Pittsburgh.....	2.90	2.95	3.00	3.00
COKE				
Connellsvill furnace, ovens	3.20	3.35	4.05	4.65
Connellsville foundry, ovens	4.25	4.30	4.85	5.50
OLD MATERIAL				
Heavy melting steel, Pittsburgh..	16.00	15.40	19.75	20.50
Heavy melting steel, eastern Pa.	15.75	14.70	17.00	18.65
Heavy melting steel, Chicago ..	13.50	13.75	16.70	17.75
No. 1 wrought, eastern Pa.....	17.75	17.75	19.00	22.75
No. 1 wrought, Chicago	13.25	13.60	16.05	16.95
Rails for rolling, Chicago	14.75	15.30	19.30	19.40

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.

Composite Market Average

Representing the Combined Average Prices Per Ton of Fourteen Leading Iron and Steel Products Yesterday, One Week, One Month, Three Months, One Year and Ten Years Ago.

June 11, 1924	June 4, 1924	May, 1924	Mar., 1924	June, 1923	June, 1914
$40.66	$40.84	$41.38	$43.24	$46.46	$22.58

Products Included Are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

Iron and Steel Prices

SCRAP PRICES, PAGE 1590; WAREHOUSE, PAGE 1586; ORE, NUTS, BOLTS AND RIVETS AN PIPE PRICES, PAGE 1592

Pig Iron

Prices per gross ton

Bessemer, valley	$21.50
Bessemer, Pittsburgh	23.26
Basic, valley	20.00 to 20.50
Basic, Pittsburgh	21.76 to 22.26
Basic, Buffalo	19.00 to 20.00
Basic, del., eastern Pa.	20.75
Malleable, valley	20.00 to 20.50
Malleable, Pittsburgh	21.76 to 22.26
Malleable, Chicago	22.00
Malleable, Buffalo	19.00 to 20.00
Malleable, del., eastern Pa.	22.00 to 23.00

FOUNDRY IRON SILICONS

No. 2 Northern	1.75 to 2.25
No. 2 Southern foundry	1.75 to 2.25
No. 2X East'n and Virginia	2.25 to 2.75
No. 1X Eastern	2.75 to 3.25
No. 1 Chicago	2.25 to 2.75
No. 2 foundry Eastern	1.75 to 2.25

No. 1X, eastern del., Phila.	22.00 to 23.00
No. 1X, Buffalo	19.50 to 20.50
No. 1 foundry, Chicago	22.50
No. 2 foundry, valley	19.50 to 20.00
No. 2 foundry, Pittsburgh	21.26 to 21.76
No. 2 foundry, Buffalo	19.00 to 20.00
No. 2 foundry, Chicago	22.00
No. 2 foundry, Granite City	23.00 to 23.50
No. 2 foundry, Ironton fur.	20.00
No. 2 foundry, Cleveland, del.	21.50 to 22.00
No. 2 foundry, del., Phila.	21.00 to 22.00
No. 2 foundry, N. J. tidewater	21.39 to 22.39
No. 2X, eastern del., Phila.	21.50 to 22.50
No. 2X, east. N. J. tidewater	21.89 to 22.89
No. 2X, eastern del., Boston	24.65 to 25.65
No. 2X, foundry, Buffalo fur.	19.00 to 20.00
No. 2X, Buffalo, del. Boston	24.91 to 25.41
No.2 southern, Birmingham	20.00 to 21.00
No. 2 southern, Cincinnati	24.05 to 25.05
No. 2 southern, Philadelphia	27.80 to 28.80
No. 2 southern, Chicago	26.01 to 27.01
No. 2 southern Cleveland	26.01 to 27.01
No. 2 southern, Boston (rail and water)	26.91 to 27.91
No. 2 southern, St. Louis	25.17 to 26.17
No. 2X, Virginia furnace	25.50
No. 2X, Virginia, Phila.	30.17
No. 2X, Virginia, Jersey City	31.04
No. 2X, Virginia, Boston	31.41
Gray forge, eastern Pa.	20.50 to 21.50
Gray forge, val. del., Pitts.	20.76 to 21.26
Low phos., standard, valley	28.50 to 29.00
Low phos., standard, Phila.	nominal
Low phos., Lebanon, furnace	25.00 to 27.00
†Low phos., English, Phila.	27.26 to 27.76
Charcoal, Birmingham	31.00 to 32.00
Charcoal, Superior Chicago	29.04

Silvery Iron
Jackson County, Ohio, furnace

7 to 8 per cent	29.00
8 to 9 per cent	30.50
9 to 10 per cent	32.50
10 to 11 per cent	34.50
11 to 12 per cent	37.00
12 per cent	39.50

Bessemer Ferrosilicon
Jackson County, Ohio, furnace

10 to 11 per cent	39.50
11 to 12 per cent	42.00
12 to 13 per cent	44.50

Ferroalloys

†Ferromanganese 78 to 82 per cent, tidewater, or furnace first hand and resale	107.00 to 107.50
Ferromanganese delivered Pittsburgh	111.79 to 112.29
Spiegeleisen 19 to 21 per cent domestic furnace or tidewater	35.00 to 38.00
†Spiegeleisen, English, delivered tidewater	35.00 to 38.00
Ferrosilicon, 50 per cent contract freight allowed	75.00
Ferrotungsten standard, cents per pound contained	88.00 to 93.00
Ferrochrome, 60 to 70 chromium, 6 to 8 carbon, cents per pound contained, delivered	10.00 to 10.25
Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis	$3.50 to $3.75
Ferro carbon-titanium, carloads, producer's plant, per net ton	$200.00

†Duty paid.

Coke

Beehive, Ovens

Prices per net ton

Connellsville furnace	$3.20 to 3.35
Connellsville foundry	4.25 to 5.00
New river foundry	8.50 to 9.00
Wise county furnace	3.75 to 4.50
Wise county foundry	4.00 to 5.00
Alabama furnace	5.00 to 5.50
Alabama foundry	6.00

By-Product

Foundry, Newark, N. J., del.	$10.41
Foundry, Chicago, ovens	12.50
Foundry, Boston, delivered	12.00
Foundry, St. Louis	12.00
Foundry, Granite City, Ill.	12.00
Foundry, Alabama	6.00 to 6.50

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch base

Open-hearth, Pittsburgh	$38.00
Open-hearth, Youngstown	38.00
Open-hearth, Philadelphia	43.17 to 45.17
Bessemer, Pittsbuprgh	38.00
Bessemer, Youngstown	38.00
Forging, Pittsburgh	43.00
Forging, Philadelphia	47.17 to 50.17

SHEET BARS

Open-hearth, Pittsburgh	$40.00
Open-hearth, Youngstown	40.00
Bessemer, Pittsburgh	40.00
Bessemer, Youngstown	40.00

SLABS

Pittsburgh	38.00 to 40.00
Youngstown	38.00 to 40.00

WIRE RODS

¼-inch and finer

Wire rods, Pittsburgh	$48.00

Standard extras, $2.50 per ton over @-inch; $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skelp, Pittsburgh	2.20c to 2.25c
Universal skelp, Pittsburgh	2.20c to 2.25c
Sheared skelp, Pittsburgh	2.20c to 2.25c

Shapes, Plates and Bars

Prices per pound

Structural shapes, Pittsburgh	2.20c to 2.25c
Structural shapes, Phila.	2.32c to 2.57c
Structural shapes, New York	2.34c to 2.59c
Structural shapes, Chicago	2.35c
Structural shapes, Birmingham	2.35c to 2.45c
Tank plates, Pittsburgh	2.15c to 2.25c
Tank plates, Philadelphia	2.22c to 2.42c
Tank plates, New York	2.24c to 2.44c
Tank plates, Chicago	2.35c
Tank plates, Birmingham	2.35c to 2.40c
Bars, soft steel, Pittsburgh	2.20c to 2.25c
Bars for cold finishing, Pitts.	2.35c to 2.40c
Bars, soft steel, Philadelphia	2.52c to 2.62c
Bars, soft steel, New York	2.54c to 2.64c
Bars, soft steel, Chicago	2.25c
Bars, soft steel, Birmingham	2.35c to 2.40c
Bars, refined iron, Pittsburgh	3.00c to 4.75c
Bars, rail steel, Chicago	2.15c to 2.18c
Bars, rail steel, mill	2.10c to 2.20c
Reinforcing bars, billet, Pitts.	2.20c to 2.25c
Bar iron, common, Phila.	2.47c to 2.57c
Bar iron, common, New York	2.49c to 2.59c
Bar iron, common, Chicago	2.25c
Bars, forging quality, Pitts.	2.45c to 2.50c

Hoops, Bands, Strip

Prices per pound

Hoops, Pittsburgh, under 5 in.	2.75c to 2.90c
Hoops, Pittsburgh, 20 gage, under 1 in.	3.00c to 3.35c
Bands, Pittsburgh	2.75c to 2.90c
Hot rolled strip steel, Pittsburgh stamping quality	2.50c to 2.75c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier, base, Pittsburgh	4.50c

Cold Finished Steel

Prices per pound

Cold finished steel bars, Pittsburgh base, carloads	2.90c to 3.00c
Cold-finished steel bars, base Pittsburgh, less carloads	3.00c to 3.15c
Steel shafting, Pittsburgh	2.90c to 3.00c

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-hearth rails, mill	43.00
Relaying rails, St. Louis	27.00 to 32.50
Relaying rails, Pittsburgh	25.00 to 28.00
Light rails, 25 to 45, mill	1.90c
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.90c to 3.00c
Spikes, small railroad, Pitts.	3.25c to 3.40c
Spikes, boat and barge, Pitts.	3.40c
Spikes, railroad, Chicago	3.10c
Track bolts, Pitts. standard	3.75c to 4.00c
Track bolts, Pitts., small	4.50c to 4.75c
Track bolts, Chicago	4.10c
Tie plates, Pittsburgh	2.50c to 2.55c
Ties plates, Chicago	2.60c

Spike, tie plate and truck bolt prices for carlots.

Wire Products

To Jobbers in Carloads

Prices per pound

Wire nails, Pittsburgh	2.90c
Galv'd nails, 1-inch and over	5.15c
Plain wire, Pittsburgh	2.65c
Annealed wire, Pittsburgh	2.80c
Galvanized wire, No. 9 gage, Pittsburgh	3.25c
Barbed wire, painted, Pitts.	3.35c
Barbed wire galv., Pitts.	3.70c
Polished staples, Pittsburgh	3.35c
Galvanized staples, Pittsburgh	3.70c
Coated nails, count keg Pittsburgh	2.40c
Woven wire fencing (retailers)	65 off
Woven wire fencing (jobbers)	67½ off

Sheets

SHEET MILL BLACK

Prices per pound

No. 28, open-hearth, Pitts.	3.60c to 3.85c
No. 28, bessemer, Pitts.	3.60c to 3.85c
No. 28, open-hearth, Phila.	3.92c to 3.97c
No. 28, open-hearth, Chicago	4.09c to 4.19c

TIN MILL, BLACK

No. 28, open-hearth, Pitts.	3.75c to 3.85c

GALVANIZED

No. 28, open-hearth, Pitts.	4.75c to 5.00c
No. 28, bessemer, Pittsburgh	4.75c to 5.00c
No. 28, open-hearth, Phila.	5.07c to 5.12c
No. 28, open-hearth, Chicago	5.19c to 5.34c

BLUE ANNEALED

No. 10, open hearth, Pitts.	2.75c to 3.00c
No. 10 bessemer, Pittsburgh	2.75c to 3.00c
No. 10, open-hearth, Phila.	3.02c to 3.12c
No. 10, open-hearth, Chicago	3.34c

AUTOMOBILE SHEETS

No. 22, Pittsburgh	5.10c

Tin Plate

Prices per 100-pound box

Tin plate, coke base, Pitts.	$5.50

Iron and Steel Pipe

Base Discounts Pittsburgh to Jobbers in Carloads

	Black	Galv.
1 to 3-inch, butt steel	62	50½
1 to 1½-inch, butt iron	30	13

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional

Steel 3¼ to 3¾-inch	38½
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled, 3½ to 3¾-inch	35

Chain, Piling, Cut Nails

Prices per pound

Chain, 1-in. proof coil, Pitts	6.00c to 6.25c
Sheet piling base, Pittsburgh	2.25c to 2.30c
Cotton ties, bundle 45 lbs. Pittsburgh	$1.72
Cut nails, Pittsburgh	3.00c

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Four-inch, Chicago	$59.20 to 60.20
Six-inch and over, Chicago	55.20 to 56.20
Four-inch, Birmingham	52.00 to 53.00
Six-inch and over Birmingham	48.00 to 49.00
Four-inch, New York	65.60 to 66.60
Six-inch and over, New York	60.60 to 61.60
Standard fittings, Birmingham, base	$110.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $5 higher than Class B.

Scrap Has Upward Trend

Quotations Higher at Several Centers and Tonnage Buying Could Not Be Done at Current Levels—Dealers Build Stock

SCRAP PRICES, PAGE 1590

Chicago, June 10.—The Inland Steel Co. is understood to have purchased 5000 to 10,000 tons of heavy melting steel at approximatelv $14, delivered. This sale apparently covers the activity in the local iron and steel scrap market in the past week. Trade among dealers has also fallen off and comparatively little scrap is moving. This continued inactivity is having a depressing effect upon prices; this week heavy melting steel, shoveling steel, railroad specialties, No. 2 wrought, car wheels, No. 1 cast, rerolling rails, grate bars and No. 1 busheling have been reduced. A local scrap firm has discovered that in June of the past four presidential years scrap has taken an upturn in price at the convention period. Railroad offerings of scrap include 2900 tons by the Northern Pacific, 1100 tons by the Pullman Co. and 500 tons by the Soo Line.

Some Grades Advance

Boston, June 10.—For the first time in many weeks leading dealers have marked up a few grades of scrap iron and steel. One dealer is holding heavy melting steel at $11 and a fairly widespread attempt to maintain $10.50 shipping point is observed yet there are still rumors of scattered sales at $10 and $10.25. Reports from eastern Pennsylvania steel works indicate growing difficulty in obtaining scrap at recent prices. Mixed borings and turnings are in somewhat better demand. The Bethlehem Steel Corp. has recently taken a round tonnage for its Sparrows Point plant at prices which for New England delivery figure $7 on cars. Machine shop turnings in greater Boston district have sold at $7 on cars and chemical borings have changed hands at $9 50. All the cast grades are sluggish and prices are soft. In fact one dealer has dropped his price on heavy cast $2 a ton during the week. No. 1 machinery is quoted at $19 to $19.50 delivered.

Stronger In East

New York, June 10.—A better tone prevails in the iron and steel scrap market and dealers buying prices on several grades have been advanced. This betterment is based largely on the difficulty dealers meet in buying at recent prices and their belief that the time had arrived for laying in stocks. Consumers still are holding back, and with demand for finished products greatly restricted, little hope is offered of an immediate revival. Dealers are inclined to regard the market as having hit bottom and believe they can stock their yards with safety. The advances have ranged around 50 cents a ton, and affect, among other items, railroad steel, machinery cast, shafting, rails for rolling, grade bars and one or two descriptions of wrought scrap. The better tone in pig iron is having a stimulating effect on the position of cast scrap. The Bethlehem Steel Corp. has lifted its embargo on railroad steel, with this material now going to that interest at $14 a ton, delivered; for Claymont, Del., $15.25.

Pittsburgh Feels Uplift

Pittsburgh, June 10.—On the strength of what scrap dealers are willing to pay or have paid for scrap to lay down in their yards, most grades are up 50 cents per ton. This creates a more or less nominal market although consumers have found it necessary to pay higher figures than last week. Some consumers, including one West Virginia buyer, entering the market for heavy melting steel, are offering $16 but cannot buy at that figure. Some dealers will sell at $16.50, and the market is quoted at $16 to $16.50 although the Pennsylvania railroad is understood to have disposed of its heavy melting steel last week at $17 or a little higher, delivered to a consumer in this territory. A Weirton, W. Va., buyer has offered to pay $15 for compressed sheets but dealers today are not quoting less than $15.50. Relatively high prices were obtained by the Pennsylvania railroad, steel specialties bringing above $19. While late last week steel specialties were offered here at $19 to $19.50, today a buyer would have to pay at least $19.50 and possibly $20. Dealers appear to be holding the market firmly, putting scrap down in their yards at figures which consumers are bidding. One user at Brackenridge, Pa., bought some scrap last week, including turnings, but the Monessen and Midland, Pa., users are out of the market. The Jones & Laughlin Steel Corp. and other buyers are not releasing tonnages which have been standing for a long time on orders.

St. Louis Marking Time

St. Louis, June 9.—The situation in iron and steel scrap continues dull. Activity centers chiefly in purchasing by dealers for laying down in yards and despite the poor consumptive buying, railroads have realized fair prices on their recent sales. Stocks in users'

(*Concluded on Page* 1543)

Steel Prices Are Modified

Contracts Changed to $40 on Sheet Bars and $38 on Billets and Slabs To Obtain Specifications—Market Remains Dull

SEMIFINISHED STEEL PRICES, PAGE 1533

Youngstown, O., June 10.—With production programs at sheet mills in this district stepped down to the lowest operating rate in over two years, there is a scarcity of business in the semifinished market. Consumers have adjusted their orders for sheet bars to the volume of sheet business in hand so that the recent contraction in the volume of sheet sales is being felt keenly by sheet bar interests. Specification business has been swinging downward for several weeks, and in some cases requisitions for sheet bar tonnage against contracts has ceased. Quotations, however, show no signs of weakness, producers holding to $40, Youngstown. Inquiry for all grades of semifinished is lacking.

Specifications Fair

Cleveland, June 10.—The market for semifinished material here continues quiet, although fairly good specifications are being received by the leading interest, and it is shipping all that it is making at present. The market is quotable at $40, valley, for sheet bars, and $38 for billets and slabs.

Revise Contract Prices

Pittsburgh, June 10.—Specifications for sheet bars, billets and slabs are obtained only by revising the original contract figures to harmonize with the going market prices of $40, $38 and $38, respectively. Even at $40 it is difficult to get customers to specify sheet bars. Specifications are held back because conversion mills are not receiving orders. Some of the oil well supply interests continue to take in shipments on their forging billet contracts, at $43. Two or three of these contracts expire the last of this month, and more specifications are expected. Skelp is quoted at 2.20c to 2.25c, Pittsburgh, but the price is practically untested. Some shipments of automobile wheel skelp are being made but boiler tube and pipe skelp shipments are scarce. The makers quoting $49, Pittsburgh, on wire rods are not taking orders. The open market price is $48, Pittsburgh, and even then not much is being done in the way of large tonnage inquiries or orders.

Warehouse Prices Weaker

WAREHOUSE PRICES, PAGE 1586

Cleveland, June 10.—Buying of iron and steel products from warehouses has fallen off slightly. One dealer reports a better volume of business than in May. Indications point to better business. Prices generally are unchanged, although one interest has been offering a stock list of bars and small shapes at 2.75c, delivered Cleveland. Other dealers are getting the full 3.36c, price, with the customary shading of from $1 to $2 a ton for attractive business.

June Business Encouraging

New York, June 10.—Leading jobbers report that business so far this month has been at little higher rate than in May. However, as the month is still relatively young, it is impossible to definitely gage the volume of June business. As has been the case for sometime past, reinforcing bars are in outstanding demand with shapes a close second. Prices are steady with little prospect of a revision in the near future.

Demand Still Drags

Philadelphia, June 10.—Demand for iron and steel from stock here con-

tinues to drag. Prices are unchanged at recent levels.

Small Lot Inquiry Steady

Buffalo, N. Y., June 10.—A steady inquiry for small tonnages from iron and steel warehouses is reported. Structural shapes and sheets are the most in demand. Wire nails have been reduced 10 cents per 100 pounds and cement grades 20 cents. Reductions have also been made on small size machine bolts but the larger materials are unchanged in price and the market is firm at former levels.

Tin Plate Stocks

Accumulating, While Shipping Orders Are Awaited—Demand Disappointing

TIN PLATE PRICES, PAGE 1533

Pittsburgh, June 10.—Reports from the tin plate consuming districts, other than California, are not encouraging. In that section the fruit and vegetable packs are about normal. No word has come as yet concerning the fall fishpack but in the Alaska, Columbia and Puget Sound districts it is expected to be normal. Operations of tin plate mills in this district now are averaging 70 per cent of capacity, but producers do not expect that it will be possible to maintain that basis throughout June. A few releases are coming to hand from can makers, but even the expectations of the varnish and paint producers are not being realized. A great deal of tonnage still is held up at tin plate makers' plants intended for use in the fruit and vegetable canning districts and releases against them depend much upon weather conditions. This tonnage is awaiting shipping instructions at $5.50 per base box, Pittsburgh. Open market inquiries are scarce. The H. J. Heinz Co., Pittsburgh, is in the market for 2500 base boxes. Some of the oil companies would buy for September and October shipment but makers are not interested in naming prices that far ahead.

Prices Are Unchanged

Youngstown, O., June 10.—No improvement in the demand for tin plate is apparent, consumers continuing to show indifference toward their requirements for last half. Business placed is not sufficient to take up the slack in idle rolling capacity. Prices on production plate are unchanged at $5.50 per base box, Pittsburgh, while stock sizes are quoted from $5.15 to $5.25, Pittsburgh.

Strip Dull, Unchanged

STRIP PRICES, PAGE 1533

Pittsburgh, June 10.—Practically no change has taken place in strip steel demand for hot and cold-rolled being confined to small lots. Buying is on a hand-to-mouth basis and of late purchases by the automotive industry have been particularly limited. Operations have dwindled until 40 per cent represents the general average. Cold strips are held firmly at 4.50c, base Pittsburgh. Wide hot strips can be had at 2.50c but the general run of the hot strip steel market is quoted at 2.60c to 2.75c, base Pittsburgh.

Coke Idleness Continues

Connellsville Operations Less Than 25 Per Cent—Few Inquiries Pending—Spot Sales of Furnace Grade at $3.20

COKE PRICES, PAGE 1533

Pittsburgh, June 10.—Beehive coke production in the Connellsville district is less than 25 per cent of capacity. Many oven operators are entirely idle. Others are making only enough coke to cover contracts. Inquiries are scarce and sales few. One eastern blast furnace, is inquiring through brokers for 6000 to 8000 tons monthly for the third quarter. The only other inquiry out here involves 10,000 tons of either standard or medium sulphur furnace coke for delivery over the remainder of the year to the American Metal Co., Ltd. Spot sales of the furnace grade have been made as low as $3.20 and up to $3.35. No contracting activity is noted in medium sulphur coke on which $3 for spot shipment and $3.10 to $3.15 are quoted for extended deliveries. One lot of 5000 tons was sold at $3.15. Foundry coke activity is confined to a few single carload sales, usually at $4.50 to $5. Some is available at $4.25. Premium brands now are $6 to a maximum of $6.25 in box cars.

Production of coke in the Connellsville region for the week ended May 31 was 87,840 tons, as compared with 106,720 tons the preceding week, according to the *Connellsville Courier*.

Sales Still Restricted

New York, June 10.—Trading in coke continues of small proportions. The market on standard beehive foundry for spot shipment here continues $4.50 to $5, Connellsville, with higher and lower done, according to the brand and the factors involved. Spot standard furnace coke may be quoted at $3.60 to $3.75c, Connellsville; on standard by-product foundry coke the market is $10.41, delivered at Newark and other northern New Jersey points.

Cincinnati Market Dull

Cincinnati, O., June 10.—Coke continues dull, weak and featureless. Sales for the past week involved carloads, and the aggregate was considerably less than that for the week previous. Sellers say the market is without an encouraging aspect. Demand for foundry coke is of small consequence, while practically no market exists here for furnace coke. Producers of by-product coke report business exceedingly light. According to reports, production in the Wise county and New River districts has been curtailed 50 per cent since March 15 and additional ovens are scheduled to be banked, unless there is a marked improvement in business. New River foundry coke is quoted at $8.50 to $9.50, oven, while the Wise county grade ranges from $4 to $5, ovens.

Spot Movement Better

St. Louis, June 9.—Slightly better movement of spot coke has developed, but generally the market continues dull and featureless. Contracting is abnormally small for this season, and stocks at by-product plants are large. The most important transaction reported is the sale of 75 cars of heating coke to an industry in the district for delivery over the next three months. Foundries are buying hand to mouth. Most of them have fair supplies. Quotably foundry coke at local by-product ovens remains unchanged at $12. The movement from eastern and southern producing points is insignificant.

Southern Prices Hold

Birmingham, Ala., June 9.—Coke quotations still are around $6 for the foundry grade. Delivery is active, though in small lots. Consumers are buying for the immediate future only. By-product coke ovens hardly will find need for curtailing production for some time, though indications are that several furnaces in the district may be blown out.

Valley Steelmaking Now Lowest Since 1921

Youngstown, O., June 10.—Curtailment of operations throughout the Mahoning valley, which began March 17, continues unchecked. At the beginning of this week only 33 per cent of independent steelmaking capacity was engaged, the lowest rate since July 11, 1921. The Republic Iron & Steel Co. and the Sharon Steel Hoop Co. each have five open hearths active, the Youngstown Sheet & Tube Co. four, and the Trumbull Steel Co. three, making a total of 17.

Sheet mill operation is the lowest since Feb. 13, 1922. Fifty-four of the 120 units here are scheduled or 45 per cent of district capacity. Activity at the plant of the Newton Steel Co. is suspended for the first time since Feb., 1920. Participants in current sheet mill operation include the Youngstown Sheet & Tube Co. with 13 units, the Trumbull Steel Co. with nine, the Republic Iron & Steel Co. and the Sharon Steel Hoop Co. with eight each, the Falcon Steel Co. and the Mahoning Valley Steel Co. with six each and the Waddell Steel Co. with four.

Thirteen hot tin mills are scheduled at the Trumbull Steel Co. In addition to the foregoing the Youngstown Sheet & Tube Co. has a merchant and six pipe mills active but has suspended operations at its skelp mills. The Republic Iron & Steel Co. is operating four pipe, one plate and three finishing mills.

Operations 40 Per Cent

Pittsburgh, June 10.—Steelmaking in the Pittsburgh area is not averaging much above 40 per cent of capacity. The Carnegie Steel Co. is operating only 42 per cent of its ingotmaking capacity this week, but its blast furnace operations are unchanged, with 27 active out of 59. Its Upper and Lower Union mills here are averaging 50 per cent, but some others are on a much lower basis. The McDonald plant for instance, has only four mills active on a 5-day per week basis. Some open hearths of the independent steel producers are down at nearby points.

Bar Market Holds Steady

Prices Change Little and for Most Part Hold 2.20c, Pittsburgh—New Business Is Lacking and Production Drops

BAR PRICES, PAGE 1533

Chicago, June 10.—Sufficient time has not elapsed since local mills cut their soft steel bar price to 2.25c, Chicago, to determine whether it will stimulate business, but so far consumers are not displaying conviction that 2.25c represents the end of the present decline in finished steel prices. Most consumers appear to believe that by waiting they may buy bars cheaper, and in any event they will pay no more for them. Producers are extremely anxious for business and are vigorous in their efforts to round it up. The speed with which mills are making deliveries typifies the flat condition of order books. One mill is seeking billet reinforcing bar business at a price that undercuts the warehouses.

Rail steel has declined in sympathy with soft steel, and 2.15c, mill is today's quotation. There is some demand for rail steel reinforcing bars, but implement buying is lacking.

The spread in bar iron has disappeared and 2.25c, Chicago, can be done on any quantity. One mill that has been down 10 days has resumed. Business is not sufficient for single-turn operations for a 6-day week.

Bar Sales Slow Down

Boston, June 10.—Marked slacking in sales of commercial bars is reported by all principal producers. Prices appear to hold firm at 2.20c Pittsburgh despite rumors of lower levels and a general feeling that this price will be broken. The check in buying is probably a direct reflection on the firm attitude taken by mills and of the idea of lower prices which has entered the heads of consumers. An offer of 200 tons at 2.15c was turned down by leading mills and finally placed at 2.20c Pittsburgh.

Demand Somewhat Better

Philadelphia, June 10.—Commercial steel bar demand is somewhat better although generally restricted to small lots. Occasional sales as large as 500 tons are being made. The minimum going price now seems 2.20c, Pittsburgh, with some business still being placed at 2.25c. More concrete bar demand here now is out than for some time. At least 2500 tons is pending, all of which is expected to be placed this week. While some large makers refuse to sell under 2.25c, Pittsburgh, others are selling at 2.20c and in some cases as low as 2.15c. Cold finished steel bars here continue to be sold at 2.90c to 3.00c, base Pittsburgh.

Some Specifications Received

Pittsburgh, June 10.—Several specifications have been received by steelmakers for merchant steel bars but in no case is the individual tonnage large. They are not becoming discouraged however, but more encouraged over the outlook. Some of these specifications come from the cold-finished bar industry and others from railroad car spring manufacturers. One of the latter involving a fairly large tonnage is for cars for the Chesapeake & Ohio railroad, ordered some time ago. Little in the way of new business is developing but the Missouri Pacific railroad is in the market for 2000 cars which will take a considerable tonnage of steel. No interest is shown in third quarter requirements of merchant steel bar users. While some preferential customers have received more favorable quotations, the general market is unchanged at 2.20c to 2.25c, base Pittsburgh. Refined iron is still obtainable at 3.00c, base Pittsburgh, while double refined iron brings 4.75c, base.

Inquiry Is Light

Buffalo, June 10.—Bar inquiry is light. Mills show no disposition to go below 2.20c Pittsburgh to get business. The more generally quoted price on smaller lots is 2.25c.

No Improvement Is Shown

Cleveland, June 10.—New business in steel bars in this territory remains unusually small. According to some of the most important sellers, May was the poorest month this year and June has shown no improvement. Buyers apparently have no pressing requirements and are placing their needs only in piece-meal fashion. Prices are unchanged at 2.20c, Pittsburgh. Bands have shown further weakness and on one lot of wide sizes business is reported to have been taken in this territory the past week at 2.40c, Pittsburgh.

Improvement is Small

Pittsburgh, June 10.—Slight improvement is noted by cold-finished bar makers. As some automotive customers specify on their contracts, they in turn specify against their merchant steel bar contracts. The market however, is said to be firm at 2.90c to 3.00c base Pittsburgh. As high as 3.15c is obtained on less-than-carload quantities.

Bolts, Nuts, Rivets Lag on Light Buying

NUT AND BOLT PRICES, PAGE 1592

Pittsburgh, June 10.—Further curtailment of operations has been brought about in nut, bolt and rivet circles, one rivet plant going down entirely last Wednesday, having worked off its backlog of railroad car rivet business. The average operation of nut, bolt and rivet plants in this district is 50 per cent. From time to time single carload orders are placed but these are too widely separated to sustain higher operating rates. Nuts and bolts are quoted this week on the basis of the price as revised last week when makers commenced to name 60 and 20 off instead of 60, 10 and 10 off on large machine bolts. Structural rivets formerly quoted at a minimum of 2.60c are now 2.50c to 2.60c, some refusing to go below 2.55c. The less-than-carload price usually is 2.65c to 2.70c, although when a regular customer who ordinarily contracts for a carload or more, wishes to buy a less-than-carload quantity it is given to him at a carload price. While the regular discount on small rivets is 70 and 10 off, some makers have granted an extra 10 per cent and even on a half-carload quantity have granted an extra 5 per cent. This makes the market quotable on small rivets at 70, 10 and 10 off, to 70 and 10 off.

Prices Somewhat Firmer

Philadelphia, June 10.—Bolts, and rivets are somewhat firmer, with large rivets usually quoted at 2.65c, Pittsburgh, with anything lower exceptional. Small rivets usually are going at 70 and 10 and 5 off.

Cannot Discern Improvement

Chicago, June 10.—Bolt and nut interests complain increasingly that not only is business of small volume but also that at present prices it is a losing proposition. With the automobile and farm implement industry lagging, the chief outlets for their products are stifled. Large machine bolts continue on a basis of 60. 10, and 10 off and large rivets at 2.90c.

Hoops Not Improved

HOOP PRICES, PAGE 1533

Pittsburgh, June 10.—No improvement can be found in the hoop and band market. One maker who received orders last week is without them this week and another who received none last week has received one or two orders this week. Buying is confined to small lots. An effort still is being made to obtain 2.90c on narrow hoops but the greater majority is going at 2.75c. Some wide hoops and bands where hot strip competition enters, go at 2.60c and even lower.

Pig Iron Sales Larger

(*Concluded from Page* 1532)

trict. It is reported that the Belfont Steel & Wire Co., will change over from foundry to bessemer iron at its Belfont furnace in the next two weeks.

Market Slowing Down

Birmingham, Ala., June 10.—The pig iron market here is slowing down and the Woodward Iron Co. has blown out its Vanderbilt furnace. The Sloss-Sheffield Steel & Iron Co. also is planning to shut down two of its furnaces. Sales of iron have been in small lots, and the aggregate is far from satisfactory. Reports of sales of 5000 and 10,000-ton lots are not verified. The Alabama Co. with one furnace in operation and a second one ready for the torch, has sold a little iron for delivery into the third quarter. Quotations are lower this week. A price of $21 is being asked but sales are being closed at $20 for No. 2 foundry. J. W. McQueen, of the Sloss-Sheffield company, says there is less iron on furnace yards in this state than for many years

Good Sales in East

Philadelphia, June 10.—While booking in the past week were somewhat smaller than in the wek previous, pig iron buying was good. Eastern furnaces booked at least 20,000 tons. The biggest sale was several thousand tons of basic Foundry business was comprised mostly

of moderate and small lots. The current foundry market is $20 to $21, base, eastern furnace, with occasionally enough under $20, furnace, to allow for freight disadvantages. Low phosphorus sales comprise scattered small lots. The most interesting inquiry is from the Midvale Co., which asks prices on 1200 to 400 tons of basic, 400 to 1500 tons of foundry and 500 to 2000 tons of bessemer. As a rule furnaces are quoting only on definite tonnages in connection with this inquiry.

The Thomas Iron Co. will blow out its Hokendauqua furnace this week.

May Unfilled Bookings at Phenomenal Low

United States Steel Corp. bookings on May 31 totaled 3,628,089 tons, the lowest point reached since November, 1914. This phenomenally low point is 12 per cent below the bottom reached in the depression of 1921. May recorded a drop of 580,358 tons, the largest since June 1923 when the drop was 595,090 tons. The May decline was 13.79 per cent, as compared with 12 per cent in April and 8.5 per cent in June 1923. On only two occasions since 1912 has a lower tonnage been shown on the books of the Steel corporation than that on May 31. Further comparisons follow:

Date	Total	Change, tonnage	Change, per cent	
May 31, 1924....	3,628,089	580,358—	13.79	—
April 30, 1924....	4,208,447	574,360—	12.008	—
Mar. 31, 1924....	4,782,807	130,094—	2.6	—
Feb. 29, 1924....	4,912,901	114,472+	2.3	+
Jan. 31, 1924....	4,798,429	350,183+	7.8	+
Dec. 31, 1923....	4,445,339	76,755+	1.7	+
Nov. 30, 1923....	4,368,584	304,241—	6.5	—
Oct. 31, 1923....	4,672,825	362,925—	7.2	—
Sept. 30, 1923....	5,035,750	378,913—	6.99	—
Aug. 31, 1923....	5,414,663	496,100—	8.4	—
July 31, 1923....	5,910,763	475,498—	7.4	—
June 30, 1923....	6,386,261	595,090—	8.5	—
May 31, 1923....	6,981,351	307,158—	4.21	—
April 30, 1923....	7,288,509	114,823—	1.5	—
Mar. 31, 1923....	7,403,332	119,343+	1.63	+
Feb. 28, 1923....	7,283,989	373,213+	5.40	+
Jan. 31, 1923....	6,910,776	165,073+	2.31	+

Fluorspar Sales Better

New York, June 6.—Fair sales of foreign fluorspar continue to be made and the territory in which this material is being shipped is widening. A growing volume of imports has been going to middle western points. Foreign matreial varies in quality, but some is of high grade. One shipment of German fluorspar just delivered, contained, according to buyer's analysis, 93¼ per cent calcium fluoride and 4 per cent silica. The market on the foreign material ranges from $19 to $20 per net ton, duty paid tidewater.

Gage Steel Meeting

B. H. Blood, chairman of the gage steel committee, has called a meeting of the committee to be in the General Motors building, Detroit, Tuesday, June 17 at 10 a.m. The reports to be given at this meeting will be of special interest and value. The tentative and partial program is as follows: 1. General progress report on work of committee; 2. reports on laboratory and service wear tests; 3. accelerated aging; and 4. dimensional changes with time.

Smith Bros. Hardware Co., Columbus, O., has increased its capital stock from $750,000 to $2,000,000.

Tanks Take More Plates

Sizable Tonnages in New Jobs Awarded or Figured—Other Lines Still Reflect Lack of Demand—Price Range 2.10 to 2.20c, Pittsburgh

PLATE PRICES, PAGE 1533

New York, June 10.—Whether the city of New York will place its order for six ferryboats with the New York Shipbuilding Corp., the low bidder, or whether it will place the business with shipyards in New York harbor, is to be determined Friday. The bid has been held up owing to feeling among some of the city officials that the boats should not go to the New York Shipbuilding Corp. because the latter has its yards at Camden, N. J., and that New York yards should be preferred, Very little plate tonnage, comparatively, has been placed the past week. Action is scheduled this week, however, on several lots ranging from 500 to 2500 tons each. Prices on attractive lots continue to range from 1.90c to 2.00c, Pittsburgh, with special figures available on especially attractive lots.

More Tank Work Placed

Pittsburgh, June 10.—The Standard Oil Co. of Louisiana has closed for eight 84,000-barrel tanks for Baton Rouge, La., requiring 3000 to 4000 tons of plates, contract for which is expected to be placed this week. Another attractive plate tonnage is involved in the gas holder contract awarded by the city of Memphis, Tenn, to the Riter-Conley Co., Pittsburgh, 1800 tons of plates and shapes. Plates are quoted at 2.15c to 2.20c Pittsburgh. The minimum price is understood to apply to large tonnages.

Orders in Better Volume

Cleveland, June 10.—Small sellers of plates report a better run of miscellaneous business and a more hopeful attitude in that some buyers who have not been in the market since last fall now are taking some tonnage. A considerable part of the buying is rated to oil field work. The Standard Oil Co. of Ohio has placed nine stills requiring 250 to 300 tons. Lake shipyards again are negotiating with prospective builders of a freight vessel and inquiries for material for this boat are in the market. A recent inquiry for 2000 tons of plates for a local automotive specialty interest has been withdrawn. In prices a spread of 2.10c to 2.20c, Pittsburgh is weak. A number of lots including some universals were placed at 2.20c, Pittsburgh, but in other cases where competition was close 2.10c, Pittsburgh was done on tank steel.

Fair Oil Tank Business Out

Chicago, June 10.—Local plate mills have before them inquiry for oil storage tanks that aggregate 14,450 tons. This inquiry comprises 7500 tons for tanks for the Marland Refining Co., 2500 tons additional for the Humble Oil Co., 2000 tons for the Humphrey Co., 1200 tons for the Perry Oil Co., 750 for the Simms Petroleum Co., and 500 for the Gypsy Oil Co. Merchant demand for plates continues low, especially with car builders not no win the market. The quotation on tank plates is now 2.35c, Chicago.

The Florida East Coast railroad has placed from 1500 to 2000 tons of car material for 223 cars recently awarded.

Steel Placed for Cars

Philadelphia, June 10.—Plate demand in the East continues slow. It is expected here the New York Shipbuilding Corp., which was the low bidder on ferryboats for New York City, will not get the work. It is expected that three boats each will be awarded to the Staten Island and other yards. The six boats involve about 2000 tons of steel. The Chesapeake & Ohio placed with the Inland Steel Co., 11,000 tons of steel for 1000 cars, to be built by the Newport News Shipbuilding & Dry Dock Co., but the price is not known. The ship business here is quiet. The market on plates continues 2.00c to 2.20c, Pittsburgh, with variations according to the attractiveness of the lots. More demand in structural lines is coming out here.

Ore Market Quiet; One Good Tonnage Sold

ORE PRICES, PAGE 1592

Cleveland, June 10.—The market for Lake Superior iron ore remains inactive, although a producer with headquarters here has closed for one lot of 100,000 tons. This was in prospect for some time, and is the largest single tonnage booked by any interest since the opening of the market. Otherwise sales are very scare and are confined to much smaller lots. About 40 boats have been taken off since the slump developed. A better movement is expected later in the season. The Lake Superior Iron Ore association reports that receipts at Lake Erie ports in May totaled 3,355,271 tons, compared with 4,041,956 tons in May, 1923, and the total of receipts for the season to June 1 is 4,684,162 tons, in contrast with 5,894,678 tons last year.

Discuss Bar Iron Scale

Atlantic City, N. J., June 10.—Representatives of the Western Bar Iron association and the wage committee of the Amalgamated Association of Iron, Steel, and Tin Workers are meeting here to consider the Amalgamated demands for increases in base wage rates. Sessions have been held since last Friday, but no agreement has been reached. The union's demands include an advance of 43 per cent in the base rate for puddlers.

Chicago Output Lower

Chicago, June 10.—Steel ingot operations in the Chicago district have declined 5 per cent and now average about 55 per cent. Two more blast furnaces have been blown out in this district, and of the 30 steelwork stacks of the two leading producers, 15 now are active.

Concrete Market Lifeless

Good Tonnages Lacking but Numerous Small Projects Keep Fabricators From Closing Down—Price Levels Not Maintained

REINFORCING BAR PRICES, PAGE 1533

Cleveland, June 10.—Concrete reinforcing bar tonnage is moving slowly. Inquiries for small lots continue fairly numerous, but closing action is delayed. One of the largest projects now before the trade is the Union station retaining wall, on which general contractors' bids go in June 19. The first lot of concrete bars, totaling 300 to 400 tons, will be bought shortly afterward. A total of between 2000 and 3000 tons is required for the completed work. Prices continue soft on new steel bars, with 2.20c to 2.35c, Pittsburgh, the going market. On rail steel, 2.00c to 2.10c, mill is quoted, with little to test the quotation's strength. W. S. Tyler Co. addition, taking 180 tons, was awarded Pollak Steel Co. at a fairly low figure. Bars out of stock are being sold down to 2.45c, Pittsburgh, although 2.55c to 2.65c is the customary spread.

Prices Are Strengthening

New York, June 10.—While new demand for concrete reinforcing bars is very quiet, the market as far as prices are concerned is firmer than in sometime. On mill shipments, 2.25c base Pittsburgh is done in most instances and the 2.20c price is less usual than a few weeks ago. Some mills that sold recently at 2.20c now refuse to shade 2.25c. On concrete bars out of stock here, the market continues 2.90c to 3.00c base.

Larger Tonnages Are Deferred

Pittsburgh, June 10.—Reinforcing concrete bars again have been dull this past week as action on most of the larger awards continues deferred. General contract for the Veterans' hospital, Aspinwall, Pa., was awarded to W. F. Trimble & Sons. About 500 tons will probably be needed. The time has been extended on the building for the Citizens' Title & Trust Co., Uniontown, Pa. Prices continue unchanged at 2.20c to 2.25c, base Pittsburgh, although some of the concrete bar fabricators can buy from the mills at 2.15c. The warehouse price is 2.40c.

Tonnages All Are Small

Cincinnati, June 10.—Buying of reinforcing bars continues in fair volume. Tonnages usually are small. On bars for mill shipment there have been some exceptions but the market generally is 2.10c, base Pittsburgh. Roos, Meyer & Hecht Co., has been awarded the general contract for the addition to the Gambrinus Garage & Storage Co., which will involve 100 tons. Bids went in June 7, for three additional sections to the Cincinnati subway, which will involve 900 tons. The Columbus Bolt Works, Columbus, O., is taking bids on a reinforced concrete addition to its plant.

Jobs Fewer; Prices Sagging

Chicago, June 10.—In contrast with the structural steel market, fewer reinforced concrete jobs are coming out and estimating has decreased considerably. While the average for the business now going is probably still about 2.45c, Chicago, this level is weak, and a decline to at least 2.40c, Chicago, is in prospect. The price situation is both complicated and weakened by the vigor with which one local mill is seeking business. The outstanding job of the weak is the addition to the Donnelley printing plant, 350 tons, which the Inland Steel Co. took for rail steel.

Jobbers Demand Decreased

Buffalo, June 10.—Reinforcing bars are reported being sold from jobbers' stock at $2 a ton over mill price. Demand for material for structural use has dropped off, and not so much new inquiry for bars for road work is coming out as was reported during May. Sales have been confined to lots of 75 to 125 tons as a maximum. Warehouse demand has decreased.

CONCRETE CONTRACTS PLACED

Awards this week	2,455 tons
Awards last week	1,791 tons
Awards two weeks ago	6,498 tons

1000 tons, apartment building, Washington, D. C., to Concrete Steel Co.

350 tons, rail steel bars, for addition to building of Reuben H. Donnelley Corp., Chicago, to Inland Steel Co. General contract let to Leonard Construction Co., 37 South Wabash avenue, Chicago.

290 tons, building for Commercial National bank, Peoria, Ill., to the Concrete Steel Co.

200 tons, Pioneer State bank, Chicago, to Olney J. Dean & Co.

200 tons, Illinois, Missouri and Wisconsin road work, to Olney J. Dean & Co.

165 to 180 tons, addition for W. S. Tyler Co., Cleveland, to Pollak Steel Co.

150 tons, building for Secaucus hospital, Secaucus, N. J., to Concrete Steel Co.

100 tons, building for A. L. Bartlett Mfg. Co., Rockford, Ill., to American System of Reinforcing.

Tonnage unstated, foundations for power house for Illinois Power & Light Co. at Des Moines, Iowa, to the Laclede Steel Co.

CONCRETE CONTRACTS PENDING

1000 tons, plant for General Electric Co., West Philadelphia; general contractor, Turner Construction Co.

900 tons, three sections of Cincinnati subway, Cincinnati; bids in.

500 tons, Veterans' Tuberculosis hospital, Aspinwall, Pa., general contract received from United States government by W. F. Trimble & Sons, North Side, Pittsburgh.

300 tons, Bell Telephone building, Canton, O.; bids in June 23.

300 to 400 tons, first section of work on Union station retaining wall, Cleveland; bids in June 19. Several thousand tons are involved in the entire structure.

250 to 300 tons, Bell telephone building, Akron, O., bids in June 23.

100 tons, settling tank, waterworks department, Akron, O.; bids in June 12.

Tonnage unstated, 4-story, $550,000 apartment at 6428 Cottage Grove avenue, for the Mansfield Building Corp., Chicago. Plans by Hall, Lawrence, Rippel & Ratcliffe, 123 Madison street, Chicago.

Tonnage unstated, bank building for South Chicago Savings bank, South Chicago, Ill., to cost $300,000. Plans being drawn by Ivar Viehe-Naess & Co., 400 North Michigan avenue, Chicago.

Tonnage unstated, 5-story publishing building projected by N. K. Araneff, 314 West Superior street, Chicago. Plans not yet prepared.

Tonnage unstated, Edgewater Athletic club, Chicago. Paul Gerhardt, 64 West Randolph street, architect. Bids in about 60 days.

Pipe Mill

Operations Continue Relatively High —Cast Grade Is Strong

PIPE PRICES, PAGE 1533 AND 1592

Pittsburgh, June 10.—With butt-weld and lapweld pipe mill operation averaging 65 to 70 per cent, tubular goods continues to pair off with tin plate as the two finished steel products maintaining relatively high operations. This average applies both to this district and the Youngstown territory. In both, a slight improvement in the lapweld demand is noted due to the better consuming rate in oil country goods. No outstanding tonnage is noted since no large lines are being laid but orders for one to three carloads of casing, drill pipe, and other oil country goods are being received. Jobbers' stocks are not large. Some of the standard full weight merchant pipe jobbers have endeavored to liquidate their stocks, believing they would be able to replenish them at lower figures, but mill prices show no signs of sliding backward. These are deferring their orders as long as they can and in the meantime are buying as little as possible just as it is needed.

Municipal Demand Lacking

New York, June 10.—Trading in cast iron pipe again is featureless. Municipal demand is virtually nil, and at the moment, little in the way of substantial inquiry is in sight. The bulk of trading, as for sometime past, is comprised of rather small orders for private account. Despite the fact that buying on the whole is perhaps as slow as at any time this year, although not inactive, prices remain unchanged. The majority of shops still have a couple of month's business on their books and are not inclined to encourage new business by offering concessions.

Low Prices on Large Sizes

Chicago, June 10.—One of the larger makers of cast iron pipe appears hungry for business in the larger sizes and is reported to have made some low prices at places where bids were privately taken. The lowest reported price on the larger sizes is $52.20, Chicago. On smaller jobs of 6-inch pipe and over the range is $55.20 to $56.20. On 4-inch pipe the Chicago delivered price is $59.20 to $60.20. Makers of pipe are booking a number of lots but they are uniformly small. Kimberly, Wis., closes this week on 300 tons.

Trade Still Receding

Birmingham, Ala., June 9.—The cast iron pipe trade still is receding. Several specifications are reported in sight and a division is announced on some of the large contracts recently let. There has been no curtailment of production at pressure pipe plants. Soil pipe and fittings makers are not receiving any new business and there are no indications of an early recovery.

CAST IRON PIPE PLACED

750 tons, Columbus, O., to the United States Cast Iron Pipe & Foundry Co.

727 tons, 36-inch class B pipe for Bellingham, Wash., to United States Cast Iron Pipe & Foundry Co.

625 tons, 4 to 10-inch pipe for city of Van-

couver, municipality of Point Grey and province of British Columbia to the Canadian Fairbanks-Morse Co., Ltd.
350 tons, Jacksonville, Ill., to the United States Cast Iron Pipe & Foundry Co.
200 tons, Dallas, Tex., to the United States Cast Iron Pipe & Foundry Co.
100 tons, Vandalia, Ill., to the United States Cast Iron Pipe & Foundry Co.

CAST IRON PIPE PENDING

1655 tons, 42-inch pipe for the Hetch-Hetchy project, San Francisco; reported in IRON TRADE REVIEW in March as having been awarded to the United States Cast Iron Pipe & Foundry Co.; all bids rejected, new bids will be opened June 18.
750 tons, Morganfield, Ky.; bids June 24.
660 tons, 4 to 12-inch pipe for Hawthorne, Cal.; bids in.
246 tons, 4 to 8-inch pipe for Santa Ana., Cal.; bids in.

Dull Market

Still Rules in Ferroalloys Indian and German Ferro

FERROALLOY PRICES, PAGE 1533

New York, June 10.—Sales of ferromanganese continue restricted as a rule to carloads and moderate sized lots for early shipment, but the total is somewhat larger than usual of late. The market on current business continues $107.50 duty paid tidewater.

Demand for spiegeleisen is somewhat better and one lot was sold during the past week for shipment over the next six weeks. The market on spiegeleisen continues $35 to $38 on the 20 per cent grade, depending on the tonnage involved.

Market Shows Little Life

Pittsburgh, June 10.—Briskness is absent from the ferroalloys market which is uninteresting except in the fact that a fairly large number of shipments continue to be made on contracts and a few single carload inquiries appear each week. New orders are limited to a few single carloads at $107.50 seaboard base. No interest as yet is manifested in third or last quarter supplies. It is stated that no cancellations have been received and that the few suspensions in the form of requests for deliveries be extended 30 or possibly 60 days. Sellers of both German and Indian low grade ferromanganese are endeavoring to gain a foothold in this market with some low quotations, the latter being available at $100, seaboard. The German ferromanganese cannot be sold for delivery before July. Buyers here are more or less indifferent.

Spiegeleisen is quiet and it is understood that while quotations are unchanged, some lower figures would be made should a real inquiry come out. Special alloys all are dull. One nearby user bought 50 tons of 50 per cent ferrosilicon at $75, freight allowed. Prices are unchanged.

More Activity At Chicago

Chicago, June 10.—Ferroalloys are more active. Ferromanganese is firm on the basis of $107.50 seaboard. Current inquiry totals about 300 tons. Several hundred tons of spiegeleisen have been sold at $35, New Orleans.

The Rockwood Stove Works, Rockwood, Tenn., operator of a gray iron foundry and builder of stoves, has increased its capital stock from $50,000 to $100,000.

Meets Sheet Competition

Leading Interest in Some Cases Taking Tonnage at $4 Under Former Level—Valley Output Lowest Since 1921

SHEET PRICES, PAGE 1533

Youngstown, O., June 10.—Unwillingness of buyers to place business in attractive volume has reduced the operation of sheet mills in this district to the lowest point in over two years. During the past few weeks the price structure has been under pressure, and while a few of the smaller sheet producers have acceded to the demands of buyers, the market generally has been able to withstand the attack. The price position is perhaps stronger now than for many weeks past, despite the idle capacity at some plants. Conditions, however, are antagonizing from the mill point of view. The trade is decidedy critical in the inspection of finished tonnage, as usual in a buyer's market, and concessions are being sought shortly after shipments are received. No attempt is being made to lay down stock merely to keep mill trains turning, and the opinion is held that as soon as the trade understands the intention of producers to follow sound policies there will be less hesitation to place tonnage. While some interest is being shown for black sheets the tonnage is far from being attractive. Price concessions still are encountered in the Detroit district and in some of the western territories, but the move is not general nor has much disturbance resulted. The majority of producers here are quoting blue annealed at 2.80c, black at 3.65c and galvanized at 4.80c, Pittsburgh. The volume of new business is decidedly low.

Inquiry Slightly Better

Buffalo, June 10.—Sheet inquiry shows some improvement, although demand still is confined to small lots, and does not include anything from the automobile makers of more than ordinary size. Prices seem steadier than for some time and have centered around 3.65c Pittsburgh for black. Production schedules here have been reduced to the lowest point of the year. The reduction will be only temporary if the demand holds up to recent proportions, it is indicated.

Cool Weather Not Welcomed

Chicago, June 10.—Steel sheet bookings have been worked off more rapidly than producers expected because the weather has been cool. Order books still are in fair shape but new business is not equal to shipments. Third quarter business has not yet received serious consideration on account of the price situation. Today's levels appear to be 2.80c, Pittsburgh, for blue annealed, 3.65c for black and 4.80c, for galvanized.

Market Moving in Right Direction

Pittsburgh, June 10.—Transactions in various grades of sheets are more numerous, though not large. Several sales of blue annealed sheets are noted, one to a car builder, another to a maker of riveted water pipe. One order for 200 tons of one size was taken for export to Mexico. An order for 1000 tons of galvanized sheets for railroad car roofs also was received by a large producer here for rush shipment. A few orders for full-finished automobile sheets have been booked. The price on the latter grade is unchanged at 5.10c Pittsburgh, quoted by all producers. The American Sheet & Tin Plate Co., continues openly to quote 3.00c, 3.85c and 5.00c. Pittsburgh, on blue annealed, black, and galvanized, respectively. However, in some instances the company is meeting competition to the extent of $4 per ton to 2.80c, 3.65c and 4.80c, respectively, on the three grades. This is the level at which the independent mills generally have been quoting for some weeks. Sheet mill operations are on approximately the same basis as a week ago, averaging around 40 or 45 per cent of capacity. Should expectations of improved business conditions be realized that figure undoubtedly will be increased shortly.

Some Shading Noted

Philadelphia, June 10.—While sheets in most instances are holding firm, some shading is being done on attractive lots. Blue annealed generally is 2.80c, Pittsburgh, but 2.75c is done, and in some cases 2.70c. Black generally is 3.60c to 3.65c. Galvanized is 4.75c to 2.80c.

Buy More Wire

Better Orders Being Received by Makers for Nails and Mill Products

WIRE PRICES, PAGE 1533

Pittsburgh, June 10.—Two or three wire products makers report a slightly improved buying rate in nails as well as in mixed carloads of wire to jobbers. This by no means is what it should be for this season of the year, but producers are encouraged to look for better things as the summer advances. Operations, shipments and incoming business all are about on a 50 per cent basis. Prices are fairly firm at 2.90c and 2.65c, base Pittsburgh, for wire nails and plain wire, respectively. Several established producers will not now go below those figures in any event. Occasionally a single carload order for cement-coated nails is placed at 2.40c, base Pittsburgh.

Specifications More Liberal

Chicago, June 10.—For the first time in weeks makers of wire and wire products have experienced improved business. Operations remain at 50 per cent, on the average, and no increase seems warranted, but from all sources orders have been more numerous and slightly heavier in the past few days. It is claimed that 2.65c, Pittsburgh, is the bottom of the wire market and 2.90c, Pittsburgh, the minimum on wire nails.

Knoeppel, Johnston & Hastings, Inc., industrial engineers, New York, filed a petition in bankruptcy, with liabilities of $17,976 and assets of $2690.

Shape Market Cheerful

Large Prospective Tonnages Appear—New York To Build 70 Schools—Chicago District More Active—Railroad Bridges Take Much Steel

STRUCTURAL SHAPE PRICES, PAGE 1533

New York, June 10.—With many builders regarding the structural shape market near if not already at the bottom of the present movement, inquiry manifests more life. Several sizable jobs have come out. An important factor is the large amount of municipal work in prospect. More than 70 schools are to be brought out just as rapidly as plans can be completed, and about 7000 tons of this work already is pending. Subway work is a big feature, with the West Side subway, involving 30,000 tons as a leading item. The first section, requiring 4500 tons, was brought out last week, but later was withdrawn, at the request of the head of the new city commission which is to assume office July 1. This project undoubtedly will be up again within the next few weeks.

The board of estimate has authorized $5,000,000 for a market house in Brooklyn, similar to the Bronx market, tentatively placed recently and involving approximately 10,000 tons. It is expected authorization will be made at the next meeting of an equal sum for a market house on Manhattan. One of the largest industrial projects in sight is the New York Edison power house at the foot of East Fourteenth street, which will involve more than 20,000 tons. In some quarters plans are expected out soon.

The shape market continues to hold around 2.20c, Pittsburgh, on the general run of business, with concessions of $1 per ton on large tonnages. Firmness is shown also in the fabricated material market.

Small Contracts Rule

Boston, June 10.—Structural steel prices are soft but in the absence of heavy awards no definite levels are established. The leading steel interests are quoting 2.15c, Pittsburgh, and several 100 to 200-ton lots were placed at this price. An attractive tonnage would probably develop 2.10c, Pittsburgh. Contracts totaled a slightly heavier tonnage than for the previous week. The new Keith theater which has been under negotiation for several months is now active, the general contract having been placed and 1200 tons of steel about to be let.

Prospective Business Better

Cleveland, June 10.—Structural shape activity last week was practically nil, but prospects for future work are better. Union station interests are taking bids until June 19 for 800 to 1000 tons of sheet steel piling. This is the first actual construction work on this project which is reported to involve as much as 75,000 tons of steel. It is reported that Bethlehem Steel Co. will get the plain material on the 3300 tons of Pennsylvania railroad grade elimination work, which includes 1200 tons of Bethlehem sections. Plain material prices continue openly 2.20c, Pittsburgh, with small lots taking 2.25c and upward.

Awards More Numerous

Pittsburgh, June 10.—Inquiries for structural shapes are numerous but tonnages are small. This past week has brought about the closing up of a number of jobs above 100 tons, some above 200 tons. The Jones & Laughlin Steel Corp. received several awards including three which totaled about 750 tons; American Bridge Co. was awarded 375 tons for a warehouse at Detroit for the D. M. Ferry & Sons Co. Several smaller inquiries are pending, the only large tonnage before fabricators being that of 4000 tons for a power house near Cincinnati for the Columbia Power Co. Plain material still is quoted at 2.20c to 2.25c, base Pittsburgh. Some of the larger fabricating plants are able to maintain operations about 70 per cent of capacity; some smaller shops need work badly and are on a 50 to 60 per cent basis.

Sentiment More Cheerful

Cincinnati, June 10.—No important contracts for structural shapes were placed last week and prices continued unchanged at 2 20c to 2.25c, base Pittsburgh. The market appears a trifle firmer due to more confidence on the part of the buying public and the prospects for an increased volume of business in the future. The Stacey Mfg. Co., has received a contract from the Public Service Co., at Orlando, Fla., for a 300,000-cubic foot capacity holder which will involve 500 tons of shapes and plates. The E. M. Scully Construction Co., has been awarded the general contract for the new Milford Steel bridge of the County of Hamilton, which will require 420 tons.

Lettings and Projects Increase

Chicago, June 10.—The structural market has assumed a greatly improved tone last week. Lettings have increased and more projects have come up. Rumbling of labor trouble in the building trades is more apparent but beyond a strike of caisson workers which has tied up foundation work on large projects no actual trouble has yet been experienced. May building permits totaled $32,658,095 compared with $32,198,000 for last May. Last week six jobs of about 1000 tons were awarded. The Santa Fe railroad is taking bids on 3000 tons of structurals for bridge work. The activity in plain material, which now is quoted at 2.35c, Chicago, is by all odds greater than that in any other line of finished steel. Approximately 21,000 tons of shapes are required in inquiries just brought out.

The union of bridge and structural iron workers have voted to continue work at $1.25 an hour, under the existing contract, and not to demand $1.50 an hour because the bricklayers and plasterers won the latter scale. This removes a cloud which has been hanging over the structural market and represents a victory for the sanctity of contracts.

STRUCTURAL CONTRACTS PLACED

Building awards this week	26,658 tons
Building awards last week	22,544 tons
Building awards two weeks ago	14,855 tons

4000 tons, mostly plates, eight 84,000-barrel tanks for the Standard Oil Co. of Louisiana, for erection in Baton Rouge, La.; reported placed.

1800 tons, plates and shapes, gas holder, Memphis, Tenn., to the Riter-Conley Co.

1710 tons, elevated railroad extensions for Chicago, North Shore & Northern Co., to the Hansell-Elcock Co.

1336 tons, bridge work for New York Central railroad, allocated as follows: 896 tons to Shoemaker Bridge Co., 328 tons to Bethlehem Steel Co. and 112 tons divided among Phoenix Bridge Co., Penn Bridge Co., American Bridge Co., and Pittsburgh Bridge Co.

1054 tons, building for Mishawaka Rubber & Woolen Mfg. Co., Mishawaka, Ind., to the Kenwood Bridge Co.

1020 tons, building for Nugent Bros. Drygoods Co., St. Louis, to American Bridge Co. Wimmer Contracting Co., St. Louis, general contractor.

1000 tons, power house at North Bend, Oreg., for H. M. Byllesby & Co., to the Minneapolis Steel & Machinery Co.

900 tons, elevated approaches, Westchester avenue, New York, to McClintic-Marshall Co.

900 tons, building for the Philadelphia Institute for the Feeble Minded, Philadelphia, to the Belmont Iron Works.

850 tons, municipal inspection shed, 239th street, New York, to Levering & Garrigues Co., reported in last week's issue as low bidder.

850 tons, highway bridge, Milton, Pa., to Bethlehem Steel Corp., reported in last week's issue as low bidder.

800 tons, building for General Electric Co. at Philadelphia, to Belmont Iron Works.

800 tons, building for, Commercial National Bank, Peoria, Ill., to A. Lucas & Sons, Peoria.

700 tons, Silverman apartment, Seventy-ninth street, New York, to A. E. Norton, Inc.

700 tons, loft building, 115 West Forty-fifth street, New York, to Hay Foundry & Iron Works.

594 tons, Western Catholic Union building, Quincy, Ill., to the Mississippi Valley Structural Steel Co.

500 tons, bridge for Pennsylvania railroad, New York, to Fort Pitt Bridge Works.

500 tons, gas holder, Public Service Co., Orlando, Fla., to Stacey Mfg. Co.

450 tons, sixth section of the Standard oil building, 26 Broadway, New York, to the American Bridge Co.

450 tons, high school, Linden, N. J., to Oltmer Iron Works, Hoboken, N. J.

450 tons, Harrisburg bridge, Portland, Oreg., general contract to Portland Bridge Co.; steel to Illinois Steel Bridge Co.

434 tons, Becklenberg theater, Chicago, to the Nechin Steel Construction Co.

400 tons, building for the Butler Savings & Trust Co., Butler, Pa., to the Jones & Laughlin Steel Corp., through Harry Wimer, Butler, general contractor.

375 tons, warehouse, D. M. Ferry & Sons Co., Detroit, to the American Bridge Co., through Waldridge-Aldinger & Co., general contractor.

350 tons, county hospital, Overbrook, N. J., to the McClintic-Marshall Co.

350 tons, buildings for Yellowstone Park & Transportation Co., Livingston, Mont., to the American Bridge Co.

350 tons, Pennsylvania bridge at Becks Run, near Pittsburgh, to the American Bridge Co.

300 tons, terminal station for the Public Service Corp., Newark, N. J., to the Hay Foundry & Iron Works.

250 tons, building for the National Fireproofing Co., Indiana, Pa., to the Jones & Laughlin Steel Corp.

210 tons, addition to Pacific Coast Steel Co., plant, Seattle, to Wallace Equipment Co.

200 tons, bridge work for Bear Mountain Palasades park commission, New York, to American Bridge Co.

200 tons, Slade's Ferry bridge, Fall River, Mass., to Thomas F. Phelan.

200 tons, Mission Beach bath house, San Diego, Cal., to the Virginia Bridge & Iron Co.

200 tons, gas producer house for the Colonial Steel Co., Monaca, Pa., to the Jones & Laughlin Steel Corp.

200 tons, building for the Pennsylvania Salt Mfg. Co., Philadelphia, to the Belmont Iron Works.

150 tons, commercial building, Harrisburg, Pa., to the Lehigh Structural Steel Co.

150 tons, Pennsylvania railroad bridge, to Bethlehem Steel Co.

150 tons, building for Link-Belt Co., Indianapolis, to Insley Mfg. Co.

125 tons, Kenyon theater, Northside, Pittsburgh, to the Fort Pitt Bridge Works.

100 tons, bridge for the Pennsylvania railroad, to the McClintic-Marshall Co.

100 tons, jobs including United States Veter-

ans' hospital, No. 97, Chillicothe, O., to the Pittsburgh-Des Moines Steel Co.

STRUCTURAL CONTRACTS PENDING

18,000 tons, Delaware river bridge, Philadelphia; bids open about July 15.
11,000 tons, first section of Broad street subway, Philadelphia; bids in July 15.
4500 tons, first section, West Side Subway extension, New York. Specifications issued a few days ago, along with the request for bids by June 24 have been withdrawn, temporarily; will likely be issued again in July.
4000 tons, power station near Cincinnati, O., for the Columbia Power Co. (Union Gas & Electric Co.); bids close this week.
3000 tons, bridge work for Atchison, Topeka & Santa Fe railroad; bids in.
1500 tons, power house at Des Moines, Iowa, for the Illinois Power & Light Co.; pending.
1200 tons, Keith theater, Boston, general contract let; preliminary bids being taken.
1000 tons, Libby Hotel & Bath Corp., DeLancy street, New York; pending.
1000 tons, apartment at 54 East Fifty-fourth street, New York; Schwartz & Gross, architects.
800 tons, Carpenter apartment, Lexington & Seventy-third street, New York; pending.
800 to 1000 tons, sheet steel piling for retaining wall work of Union station, Cleveland; bids in June 19.
800 tons, Rittenhouse apartment, Philadelphia; plans revised by Suggarman, Hess & Berger.
750 tons, school for South Denver, Colo.; bids in.
750 tons, service racks for Texas Co.; bids in.
700 tons, Five Cents Savings bank, Boston; plans ready.
700 tons, mill building for Continental Gin Co., Birmingham, Ala.; H. K. Ferguson Co., engineer. Project again active.
600 tons, building for First National bank, Tulsa, Okla.; bids in.
600 tons, building for Ancaster Co., Cleveland; action expected this week.
420 tons, bridge for Hamilton county, O.; pending.
400 tons, building for the Boston Edison Co., Boston; bids asked.
350 tons, Edison Electric Light Co. substation, Boston; bids in.
300 tons, Mercy Hurst Catholic buildings, Erie, Pa.; pending.
300 tons, bridge work for Lackawanna railroad; pending.
200 tons, bridge work for the Park commission, Boston; pending.
Tonnage unstated, 4-story top addition to Webster building, Chicago. Utilities Power & Light Corp., 327 South LaSalle street, owner; Alfred S. Alschuler, 28 East Jackson street, architect. May be some time in developing.
Tonnage unstated, 10-story Edgewater Athletic club, Chicago. Paul Gerhardt, 64 West Randolph street, architect. Bids in about 60 days.

New Blooming Mill To Be Installed

The Alan Wood Iron & Steel Co. will shut down its 35-inch blooming mill at Ivy Rock division June 28 and replace the present installation with a modern unit. About one month will be required to complete the change. The company also is erecting a new steel building, 95 x 360 feet, to replace the present wooden structure which houses the blue annealed sheet department at its Schuylkill iron works division at Conshohocken, Pa. The company also is installing some new equipment and is generally modernizing and improving the latter plant to increase the sheet finishing capacity.

Imports Are Smaller

Philadelphia, June 10.—Imports of iron and steel products and ores into this port for the week ended June 7 were smaller than in the past month. They included 510 tons of iron ore from Germany, 5310 tons from Algeria; 1382 tons of pig iron from Germany and 40 tons from France; 55 tons of ferromanganese from England; 1437 tons of manganese ore from the Pacific Coast, and 268 tons of shapes from Belgium.

Railroad Buying Quiet

Missouri Pacific Re-enters Market for 2000 Freight Cars—Few Other Equipment Orders in Sight—Track Accessory Demand Still Good

RAILROAD TRACK MATERIAL PRICES, PAGE 1533

Chicago, June 10.—The Missouri Pacific railroad has revived its recent inquiry for 2000 freight cars, 1000 automobile and 1000 refrigerator. This is the largest inquiry for equipment to be brought out in this market in recent weeks. The Chesapeake & Ohio railroad has placed 1000 tons of rails. The Pere Marquette is inquiring for a small tonnage of tie plates and the Missouri Pacific and the Chesapeake & Ohio for spikes and bolts. Occasional small orders for track fastenings are being booked by Chicago makers, including 1500 tons of tie-plates for the Northern Pacific.

Equipment Buying Light

New York, June 10.—Railroad buying of rolling stock again is light, this applying to both cars and locomotives. Inquiry also is featureless. Sellers, particularly of specialties, are hopeful that business will improve. A lot of 100 tons of 60-pound rails has been sold here for shipment by German makers to Texas. The price is reported as within 2.00c per pound, duty paid.

Little Life Is Apparent

Pittsburgh, June 10.—Little life is apparent in the light rail market. Makers of rails from billets are not disposed to meet present competition on rail-steel light rails. These latter are available at as low as 1.75c and even 1.70c base Pittsburgh—the billet-rail makers are adhering to a 1.90c minimum. A few single carload orders are placed by coal mine operators which are extending their trackage, but real improvement depends greatly upon a better coal market, and this does not appear to be immediately forthcoming.

Track accessory demand is limited so that a single carload order for spikes and tie plates is looked upon with considerable favor. Makers quote 2.90c on standard spikes although for small lots as high as 3.00c still is asked. Tie plates are quoted at 2.50c to 2.55c and small spikes at 3.40c, base Pittsburgh.

CAR ORDERS PLACED

American Smelting & Refining Co., 15 gondolas, to the Pressed Steel Car Co.
Canadian National, six mail cars, to the American Car & Foundry Co.
Chesapeake & Ohio, 100 cabooses, to the Standard Steel Car Co.
Richmond, Fredericksburg & Potomac, five coaches, to the American Car & Foundry Co.

CAR ORDERS PENDING

Braden Copper Co., New York, 24 tank cars for export to Chile; pending.
Ettinger Phillips & Co., 20 box cars for Brazil; pending.
Missouri Pacific railroad, 1000 automobile and 1000 refrigerator cars; this is a revival of a former inquiry.

Manganese Ore Quiet

New York, June 10.—A lot of 400 tons of Montana manganese ore has been sold for shipment to Germany where it will be used for making batteries. The material contains 68 to 70 per cent manganese dioxide. No activity characterizes the market in manganese ore for metallurgical purposes. Indian ore continues to be quoted nominally at 41 to 42 cents per unit, c.i.f. tidewater. On Caucasian ore the asking prices are unchanged at 46 cents per unit, c.i.f. tidewater for the washed grade and 43 cents for the ordinary grade.

Credit Stress Hampering German Industry

Dusseldorf, Germany, May 29.—Credit stringency is seriously hampering the operations of German iron and steel companies. Some firms are paying up to 48 per cent interest on their loans. The Cologne correspondent of Lloyds Bank, London, says that considerable losses have been sustained in consequence of speculative transactions in French francs. These losses have not been confined to speculators, but have also been incurred by industrial firms, and it is said that the nonferrous metal industry is involved. Transactions involving French franc speculations which mature at the end of this month will absorb very large sums and tend to accentuate the difficult financial situation. The recent decision of the Reichsbank, by virtue of which the total value of credits allowed is limited to the amounts outstanding on March 31, has placed further difficulties in the way of obtaining fresh credits. Rates of interest in Cologne average from 3½ to 4½ per cent per month, or 48 per cent per annum, but for day-to-day loans, which are very difficult to obtain, the rates range from ½ to 1½ per cent per day or 365 per cent per annum.

Develops Ore and Coal

London, May 31.—Shaft sinking has commenced at the Betteshanger coal mine a few miles north of Deal on the Kent coast of England. The property belongs to Dorman Long & Co., Ltd., steelmakers, Middlesbrough and S. Pearson & Son, London, associated with Dorman Long & Co. The development is of importance because this is the first shaft to be sunk in what careful surveys indicate is one of the largest coal fields in Great Britain not previously exploited. It is estimated 1,500,000,000 tons are available for extracion in seams ranging from 3 to 9 feet at depths of 1200 to 3000 feet. It is also reliably reported that large quantities of iron ore have been discovered near Dover and that this also will be exploited by the Dorman-Long interests. It is estimated 100,000,000 tons are available. If expectations are realized the development of an iron and steel industry in west Kent similar to that around Middlesbrough is foreshadowed.

Pyramid Iron Products Corp., New York, has increased its capital stock from $15,000 to $100,000.

The Nonferrous Metals

Uncertainty Still Dominant Note in Metals—Some Straggling Signs of Betterment—Prices Little Changed

	Copper Electro delivered	Copper Lake delivered	Spot tin Straits New York	†Lead New York basis	Zinc St. Louis basis	Spot† aluminum	Spot antimony	Spot nickel
June 4	12.75	12.87½	41.25	7.12½	5.75	28.50	8.50	30.00
June 5	12.87½	13.00	42.12½	7.17½	5.85	28.50	8.25	30.00
June 6	12.87½	13.00	42.12½	7.15	5.85	28.50	8.25	30.00
June 9	12.75	13.00	41.75	7.15	5.85	28.50	8.25	30.00
June 10	12.75	13.00	41.75	7.15	5.85	28.50	8.25	30.00

†Outside market quotation.

NEW YORK, June 10.—While uncertainty of steel dominates the metals, some signs are seen that the bottom of depression has been reached. Here and there improved but moderate sales for prompt shipment are being made. Lead is recovering rapidly from its recent slump and some interest is shown in copper for deliveries all through the summer. In London the metal markets have been strengthening slowly.

Rolled products of nonferrous metals have been unchanged in published base prices this week but in brass the offered prices have been cut severely by mills wherever there has been competition for desirable orders. Operations of a number of mills have been curtailed. Shipments of nearly all shapes can be had in about two weeks, and even less on most orders for rods and tubes. A fair amount of small buying is being done.

It is generally asserted that stocks of metals are light, though zinc is known to be piling up to a certain extent and the same is true of copper.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
Copper, hot rolled, 4 oz., min..	20.25
High brass	16.75
Zinc, ga. 9 to 18 (plates ½c less)	9.50
Lead, full sheets (cut ¼c more)	11.25
Aluminum, bright, 0 to 35 gage..	37.50 to 92.00
SEAMLESS TUBES	
High brass	21.00
Copper	22.25
RODS	
High brass, round, ⅝ to 2½-inch	14.50
Naval brass rods	17.25
WIRE	
Copper	15.125 to 15.375
High brass	17.25

Old Metals

Dealers' buying prices cents per pound

HEAVY RED BRASS	
Cleveland	8.75
New York	8.00 to 8.25
Chicago	8.50
HEAVY YELLOW BRASS	
New York	6.00 to 6.25
Chicago	6.50
Cleveland	5.75 to 6.00
ZINC	
New York	3.75 to 4.00
Cleveland	3.00 to 3.25
Chicago, dross	4.25
HEAVY COPPER AND WIRE	
Cleveland	9.75 to 10.00
New York	10.00 to 10.25
Chicago	10.00
RED BRASS TURNINGS	
New York	7.50 to 7.75
Cleveland	7.00 to 7.50
Chicago	8.00
YELLOW BRASS TUBING	
Cleveland	6.50
NO. 1 BRASS ROD TURNINGS	
Cleveland	6.00
New York	6.50 to 6.75
Chicago	6.25
ALUMINUM BORINGS	
Cleveland	10.00

Fire Clay Brick

In Better Demand Some Furnaces Reline—Silica Brick Operations Low

Pittsburgh, June 10.—Dullness characterizes the market for silica brick although in fire clay brick slightly increased activity is noted. Blast furnace operators are taking advantage of their present idle period to reline. Most of the orders however, are specifications on contracts. Open-hearth relinings are not so extensive. Some of them involve 100,000 brick. Silica brick kiln operations do not average more than 40 per cent of capacity. Fire clay brick plants are averaging 50 to 60 per cent and are shipping practically on that basis. The Carnegie Steel Co. and other large blast furnace operators are specifying heavily on contracts for new blast furnace linings. New construction presaging some large brick orders includes the blast furnace of the St. Louis Coke & Iron Co., as well as the Troy, N. Y., and Everett, Mass., blast furnace propositions. Some coke oven work is contemplated at the Cambria works of the Bethlehem Steel Corp., and by other interests where large brick orders will be placed. The Westinghouse Electric & Mfg. Co. has ordered two billet furnaces and two car annealing furnaces for the South Philadelphia plant and it is understood that the order for brick is about to be placed. Prices substantially are the same as they have been for three or four weeks, Pennsylvania No. 1 fire clay being quoted at $42 to $45, with an occasional $40 price appearing on a particularly attractive order. The silica brick market price is $38, although it is reported that $36 has been done on large orders. Chrome brick is quoted at $45, some single carloads still bringing $47 in the spot market while magnesite is unchanged at $65.

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. works

Pennsylvania, No. 1	$42.00 to 45.00
Pennsylvania, No. 2	35.00 to 38.00
Ohio, No. 1	42.00 to 45.00
Ohio, No. 2	35.00 to 38.00
Illinois, No. 1	45.00 to 48.00
Illinois, No. 2	42.00 to 44.00
Kentucky, No. 1	42.00 to 44.00
Kentucky, No. 2	37.00 to 39.00
Missouri, No. 1	38.00 to 40.00
Missouri, high grade	48.00 to 50.00
Maryland, No. 1	42.00 to 48.00
Maryland, No. 2	38.00 to 40.00

SILICA BRICK

Pennsylvania	$38.00
Chicago	47.00
Birmingham	48.00

MAGNESITE BRICK

Per Net Ton Seaboard Base

9 x 4½ x 2½	$65.00

CHROME BRICK

(Per Net Ton)

9 x 4½ x 2½	$45.00

Sulphate Lower

Market for By-Products Continues Dull—Phenol Sales Fairly Good

New York, June 10.—Continued dull trading has resulted in a decline of five points in sulphate of ammonia. Business for domestic account is quoted at $2.55 to $2.60 works, and for foreign account, $2.55 to $2.60, port, in double bags. Despite the fact contracting by fertilizer manufacturers is usually well under way at this season of the year no inquiry has yet developed. These consumers are showing virtually no interest and sellers now are doubtful if any business of consequence will develop before next month. The foreign situation is quiet.

Slack demand for light oil distillates is counteracting the influence created by curtailment of production, due to the slowing up of the steel industry, with a result that prices are virtually unchanged. Pure benzol is holding at 24 to 25 cents, works, in tanks and 30 cents in drums; 90 per cent. 22 to 23 cents works, in tanks, and 28 cents in drums; xylol, 28 cents, works, in tanks and 33 cents in drums; toluol, 26 cents in tanks and 30 cents in drums; and solvent naphtha, 25 cents in tanks and 32 cents in drums.

Spot demand for phenol is fairly brisk, with the market holding at 29 cents, local warehouse. The market on futures is fairly steady at 25 cents, works. Naphthalene also is unchanged at 5½ cents, works, for flakes and 6½ cents for balls.

Coke Oven By-Product

Spot*	
Per Gallon at Producers' Plants in Tank Lots	
Pure benzol	$0.24 to $0.25
Toluol	0.26
Solvent naphtha	0.25
Commercial xylol	0.28
Per Pound at Producers' Plants	
Phenol	0.27
Naphthalene flake	0.05½
Naphthalene balls	0.06½
Per 100 Pounds at Producers' Plants	
Sulphate of ammonia	$2.55 to $2.60
Contract	
Pure benzol	Nominal
Toluol	Nominal
Solvent naphtha	Nominal
Commercial xylol	Nominal
Per Pound at Producers' Plants	
Phenol	$0.25
Naphthalene flakes	0.05½
Naphthalene balls	0.06½

*Spot distillates are subject to shading.

Coast Demand Grows Less

Various Factors Exert Unfavorable Effect on Trading—Prices Vary Between Localities—Pig Iron Listless and Coke Easy

SEATTLE, June 7.—Turnover in iron and steel products is less active along the Pacific coast than 60 days ago. In California, drought and the foot and mouth disease are having an adverse affect on business. Washington and Oregon are feeling the depression in the lumber industry. Although many plants have been closed until conditions improve, the latest bulletin shows that production of lumber is 20 per cent above new business.

Several large contracts involving iron and steel products are in prospect. Public improvement work under way is about normal for the season while building construction continues on an active scale. Seattle's building permits in May, valued at $4,758,170, were the second largest for one month in the city's history. Permits for the first five months, 1924, totaled $14,798,600 compared with $8,461,328 for the same period last year. Seattle bank clearings show a gain in May of $14,000,000 over May, 1923, while real estate transfers gained $900,000.

The Pacific Steamship Co. has begun construction of the first unit of its contemplated $4,000,000 deep water terminal and headquarters. The first pier will cost $1,000,000. Steel for this structure, involving 700 tons, ordered six months ago, is now arriving.

June 16 bids will be opened for the Seattle chamber of commerce building, 111 x 120 feet, three stories, of steel and concrete. Work began this week on the Bradner-Medico dentists and physicians office building, Seattle. Portland, Oreg., will vote June 21 on a bond issue of $5,000,000 to finance a three-year public school building program involving eight new grade and one new high school and additions to 18 buildings.

Iron and Coke

The market in pig iron is unchanged, prices being stationary and buying inactive.

Prices of plates average 2.60c in the Northwest while in San Francisco and other California centers, 2.55c to 2.70c is the range. Bids were opened May 31 for approximately 368 tons of plates for the Green River, Tacoma, pipe line on which the Boiler Tank & Pipe Co., Emeryville, Cal., offered the lowest figure. It is understood that 2.40c base Pittsburgh was quoted on this job, which with full extras amounts to about 2.70c, c.i.f. No action has yet been taken on the Loomis, Wash., pipe line job involving 270 tons. Bids will be opened June 16 for 20 pipe line pontoons to be built for the Port of Portland. This project will require approximately 100 tons. Tacoma will receive bids June 10 for two penstocks for the Lake Cushman project, involving 1000 tons.

For structural shapes 2.70c is the lowest price offered in the Northwest while in California business has been placed at 2.55c c.i.f. Two awards were made during the week, one for 450 tons for the Harrisburg, Oreg., bridge to the Portland Bridge Co. and 210 tons for an addition to the Pacific Coast Steel Co.'s 22-inch mill building, Seattle, to the Wallace Equipment Co. There is a fair total of business pending. Fabricators report a number of inquiries, action on which is expected shortly.

Finished Materials

Buying of sheets is confined to specifications for immediate requirements and tonnages offered are small. While 4.80c Pittsburgh is general, 4.75c has been named. Chicago producers are quoting 4.75c and 4.80c, Chicago, for shipment by rail. California mills are naming 3.60c for blue, 4.40c for black and 5.60c for galvanized f.o.b mill

Pipe

Cast iron pipe awards of the week include 727 tons of 36-inch class B for Bellingham, Wash., to the United States Cast Iron Pipe & Foundry Co. and a total of 625 tons 4 to 10-inch pipe for the city of Vancouver, municipality of Point Grey and province of British Columbia to the Canadian Fairbanks-Morse Co., Ltd. Pending cast iron pipe awards total 2789 tons the largest of which is 1655 tons for the Hetch-Hetchy project, San Francisco, on which new tenders will be received June 18.

Old Materials

Conditions are unchanged from last week, prices being the same and ample supplies being available. The local steel producer is operating two furnaces and requires less scrap than heretofore.

The city of Seattle has awarded to J. A. Roebling's Sons Co., the contract for furnishing 22,900 lineal feet of steel street car cable at 26¼ cents per foot; involving $6,011.25.

Scrap Has Upward Trend

(*Concluded from Page* 1534)

hands are not large, and mills would buy at a price, but dealers claim they cannot supply the material at figures the industries are willing to pay. As has been the case for several weeks, virtually nothing is coming in from the country. Southern shipping points are holding until prices will enable them to forward them at a profit. The same general policy is being pursued by local industries. Cast grades continue in somewhat better demand than others. One large operator has dismissed its laborers and is down, except to unload cars. Offerings of railroads have suffered a sharp shrinkage as contrasted with recent weeks. The only lists appearing are 1700 tons by the Mobile & Ohio and 300 tons by the Pullman Co.

Prices Firm at Cleveland

Cleveland, June 10.—Iron and steel scrap trading in the Cleveland district is extremely slack. Production is so low that dealers are finding it difficult to pick up tonnage to apply on contracts. Prices are unchanged from last week's levels but firm.

Activity Absent at Detroit

Detroit, June 10.—Scrap prices continue steady with little actvity. Some producers still are pressing stocks on dealers, but most is going into storage. Mills are not buying steel and the interest formerly displayed has evaporated. Foundry grades are inactive. There is some demand for machine shop turnings, but they are scarce.

Market Is Weakening

Birmingham, Ala., June 9.—The iron and steel scrap market is weakening and buyers are almost fixing the price they are paying. Dealers are maintaining good sized stocks. Quotations are weak and nominal. No. 1 cast, stove plate and some rerolling rails constitute the principal sales recently and no tonnage of importance is reported.

Cincinnati Is Dull

Cincinnati, June 10—Practically no market exists for iron and steel scrap, consumers refusing to buy. Prices are weak, several grades being marked down, but generally quotations are nominal. On the other hand, many consumers have sufficient stock on hand or due on contract to take care of their requirements for 30 to 60 days. The general trend is downward and there is less speculative buying. Scrap offerings continue large. The Louisville & Nashville railroad is closing a list aggregating 12,000 tons, while the Southern railway has a large list.

Some Buying at Buffalo

Buffalo, June 10.—Considerable activity in heavy melting steel has been shown in the Buffalo district within the past 10 days. Dealers have been picking up a substantial tonnage for delivery to a local mill on an old contract, on which shipments have been ordered renewed. Around $15 was paid for most tonnage bought by dealers. The only other material in demand locally is hydraulic compressed sheets, of which considerable has been purchased by Buffalo melters, at $14 to $14.25. Consumers outside the district offering $13.50 for machine shop turnings have been able to pick up some tonnage here, this price yielding local sellers approximately $10 for their material.

Higher Prices in East

Philadelphia, June 10.—Consuming demand for iron and steel scrap is somewhat better but is restricted to small lots, which are bringing higher prices. The current level on heavy melting steel is largely nominal but the undertone is strong and $15.50 seems the minimum figure at which any considerable tonnage of this grade could be bought. In fact no price has been quoted by dealers on large lots and the market is determined largely by feelers from consumers and intimations of what they would pay. At the same time dealers are picking up occasional carloads at lower prices. One dealer recently bought several carloads at $14.50, delivered Bethlehem.

Ingot Output

Totaling 2,628,261 Tons in May is 705,274-Ton Drop

Steel ingot productio nsuffered further drastic curtailment in May, the total dropping from 3,333,535 gross tons in April to 2,628,261 tons, a recession of 705,274 tons or 21.2 per cent, according to statistics compiled by the American Iron and Steel institute from figures supplied by companies which in 1923 made 94.84 per cent of the country's output. The drop of April from March was 854,407 tons, or 20.4 per cent, as shown by the revised production figures for April. On a percentage basis the May reduction exceeded that of April, which with the possible exception of months during the steel strike in 1919, was the greatest since ingot figures were first compiled in 1917. March and April were both months of 26 working days; May, however, had 27. Actual production of the reporting companies in May was 2,492,643 tons, against the revised figure of 3,161,525 tons in April.

The calculated May production represents an average daily output of 97,343 tons, which compared with the revised rate of 128,213 tons per day in April, was a loss of 30,870 tons, or 24.1 per cent. The decline of April from March was 32,862 tons per day, or 20.4 per cent. The May rate was about the same as in August, 1922 when 97,380 tons per day was made. Calculated on the basis of 97,343 tons per day in May and 311 working days in the year, the indicated annual rate of production during the month was 30,270,000 tons. This is a loss of 9,600,000 tons from the April rate of 39,870,000 tons per year. Ingot production in May represented 61 per cent of the high point production of April, 1923.

Comparisons of steel ingot production by months for 1923 and the first five months of 1924, as compiled by the American Iron and Steel institute are given in the accompanying table.

Steel Ingot Production, 1923-24

94.84 Per Cent of Industry Reporting
Gross Tons

1923	Open-hearth	Bessemer	All other	Monthly production companies reporting	Calculated monthly production all companies	No. of working days	Approximate daily production all companies gross tons	Change in daily production per cent
Jan. ..	2,906,892	728,270	9,467	3,644,629	3,841,095	27	142,263	+ 7.7
Feb. ..	2,613,564	669,903	10,797	3,294,264	3,471,843	24	144,660	+ 1.7
Mar. .	3,046,309	799,525	12,841	3,858,675	4,066,680	27	150,618	+ 4.1
Apr. ..	2,974,579	772,485	13,933	3,760,997	3,963,736	25	158,549	+ 5.2
May ..	3,136,558	847,418	16,719	4,000,695	4,216,355	27	156,161	— 1.5
Total 5 Mos.,	14,677,902	3,817,601	63,757	18,559,260	19,559,709	130	150,459	+ 5.2
June.	2,821,239	737,845	15,483	3,574,567	3,767,256	26	144,894	— 7.2
July ..	2,658,449	680,884	11,496	3,350,829	3,531,458	25	141,258	— 2.5
Aug. .	2,796,370	701,059	9,326	3,506,755	3,695,788	27	136,881	— 3.1
Sept.	2,562,771	613,709	8,602	3,185,082	3,356,776	25	134,271	— 1.9
Oct. ..	2,735,513	649,452	9,163	3,394,128	3,577,091	27	132,486	— 1.3
Nov. ..	2,348,361	616,335	9,309	2,974,005	3,134,321	26	120,551	— 9.0
Dec. ..	2,135,898	570,004	10,912	2,716,814	2,863,266	25	114,531	— 5.0
Total	32,736,503	8,386,889	138,048	41,261,440	43,485,665	311	139,825	
1924								
Jan. ..	2,766,534	667,032	12,577	3,446,143	3,633,639	27	134,579	+17.5
Feb. ..	2,902,641	695,905	14,085	3,612,631	3,809,185	25	152,367	+13.2
Mar. ..	3,249,783	706,801	15,260	3,971,844	4,187,942	26	161,075	+ 5.7
Apr. ..	2,575,788*	573,381	12,356	3,161,525*	3,333,535*	26	128,213*	—20.4*
May ..	2,060,896	425,099	6,648	2,492,643	2,628,261	27	97,343	—24.1
Total 5 Mos.,	13,555,642	3,068,218	60,926	16,684,786	17,592,562	131	134,294	.....

*Revised.

Employment Declines

Detroit, June 10.—Employment in local industrial plants declined 7241 in the week ended June 3, according to the Employers' association which reports a total of 206,348 employed. This is the eleventh consecutive decline in weekly employment.

Will Test Tariff Law

Washington, June 10.—According to word received here, the National Council of American Importers and Traders, Inc., is planning to test in the courts the constitutionality of the flexible provision of the 1922 tariff law, which gives the President the power to increase or decrease import duties by 50 per cent. Frederick B. Shipley, president of the organization, said the test probably would take the form of an application for an injunction to restrain the collection of increased tariffs on some commodities, including flour, wheat products and other articles.

The Walworth Mfg. Co., steam fitters supplies, Boston, has gone on a 4-day week basis and will operate at 65 per cent capacity until fall.

British Foundrymen Elect New Officers

By Cable

Newcastle, England, June 9.—The meeting of the Institution of British Foundrymen in session here is proving to be the best attended and most enthusiastic in the long history of the organization. R. O. Patterson, Smith Patterson, Ltd., Blaydon-on-Tyne, was installed as president. Other incoming officers are J. Cameron, Cameron & Robertson, Kirkintilloch, senior vice president and Vincent C. Faulkner, editor, *Foundry Trade Journal*, London, junior vice president. F. W. Finch, treasurer, and W. G. Hollinworth, secretary were re-elected.

Oliver Stubbs, Joseph Stubbs, Ltd., Manchester, was made a special honorary life member of the instiution. Greetings from American foundrymen were conveyed in a cablegram received from G. H. Clamer, president of the American Foundrymen's association, which was read at the meeting. H. D. Miles, Buffalo Foundry & Machine Co., Buffalo, spoke briefly as representative of the American Foundrymen's association.

Opposes Metric System

Reasons and arguments for retaining the American system of weights and measures, rather than make the metric system compulsory are set forth in a pamphlet issued by the American Institute of Weights and Measures, New York. Inconvenience and expense involved in such a change constitute the greatest obstacles and absence of real need for a changed system is pointed out. That the metric system has been permissive in the United States since 1866 and has not made headway against the American system is pointed out as proof that it does not appeal to users in this country.

Strike in Norway Settled

London, June 1.—It is reported from Christiania, Norway, that the strike in Norwegian iron and steel works and foundries, which has been causing considerable trouble for a number of weeks, has been settled. Work is being resumed. Over 55,000 men were out during the strike. The strike was over a question of wages and was settled by a compromise through the intervention of the public mediator.

Union molders in the Newark, N. J., district are on strike for an increase from 90 cents to $1 an hour. They point out that molders and coremakers in New York have been receiving $1 since last fall.

Belgians Dump Steel in Britain

Twenty-thousand Tons Unloaded at Welsh Ports—English Prices Soften, Except Galvanized Sheets, Up 15 Shillings—Continental Maker Sell 250 Cars to Argentina—French Iron Output 50 Per Cent Over 1923

Iron Trade Review Staff Cable

European Headquarters,
IRON TRADE REVIEW,
2-3 Caxton House, Westminster, S. W.1

LONDON, June 10.—British iron and steel prices are weaker, and shading is noted in transactions reported this week. Belgian steelmakers have just dumped 20,000 tons of steel at Welsh ports. A strong feature of the British market, however, is the advance of 15 shillings in the price of galvanized sheets. A good trade in this product is maintained with India, South Africa and South America.

British locomotive builders have taken orders for 60 locomotives for India, obtaining them because of guaranteed quick delivery. French and Belgian carmakers collectively have booked 250 cars for shipment to Argentina.

French pig iron makers continue to report new records in output, and the market is firmer. The production in April was 651,000 metric tons compared with 634,000 in March, 590,000 in February; 585,978 in January, and a monthly average of 441,630 tons in 1923. The monthly output in 1913 was 433,900 tons. The gain in April was 50 per cent over the 1923 average, and 47 per cent over that of 1922.

Tariff To Aid Indian Steel Mill Development

By Special Cable

London, June 10.—The government of India has adopted the report of the tariff board raising duties on steel and steel products, this affecting American imports.

LONDON, June 1.—A protective tariff for Indian iron and steel manufacturers is proposed in the report of the Indian tariff board just issued. The board has been considering the tariff question several months and reports here indicate the government probably will adopt its suggestions with modifications.

The change in policy is a matter of concern to American iron and steel manufacturers, who enjoy a good business in India, and is of even more importance in marking a further step in postwar economic development, India being one of the few remaining large consuming markets for the surplus iron and steel production of America and Europe.

The duties proposed, as already reported by cable in a previous issue, range from 15 to 25 per cent ad valorem with specific duties on products which are thought to need special protection ranging from $8.80 to $18.50 a ton. Steel bars and rails, 30 pounds and over, can now be imported according to the board's estimates, at Rs. 140 per ton (1.82c) structural shapes at Rs. 145 (1.90c); and ordinary plates at Rs. 150 per ton (1.96c). The board finds the average price which gives the Indian manufacturer a fair return on his capital is Rs. 180 per ton (2.35c). The schedule of increased duties is designed to bridge this gap varying in the classes of manufactures named from $8.80 to $11.75 per ton.

Proposed New Duties

Before the war railway material was imported free and 1 per cent ad valorem was paid on iron and steel. In 1917 a rate of 2½ per cent was imposed on both classes and two years ago this was raised to 10 per cent. The effect of the present proposals is to raise the duty in many branches of both trades to 15 and in some cases to 25 per cent.

High Specific Duties

In some cases the end is to be attained by imposition of specific duties; in the case of steel of from Rs. 30 ($8.80) to Rs. 45 (13.20) a ton and of wrought iron from Rs. 20 ($5.70) to Rs. 35 ($10) per ton. Bounties on a descending scale are to be granted for three years on the Indian manufacture of medium and heavy rails and fish plates, while the present ad valorem duty is to be converted into a specific duty of Rs. 14 ($4.15) per ton. There are similar proposals in regard to agricultural implements, sheets, etc., and on most classes of fabricated steel the rate is to be 25 per cent. A specific duty of Rs. 60 per ton ($18.50) is proposed for tin plate, wire nails, and wire products except barbed wire and standard fencing wire. Substantial bounties are to be given on the manufacture of railroad cars, but are to be limited to given numbers during each of the next five years.

The proposals generally are limited to a period of three years, in the expectation that by then it will be possible to reduce the cost of steel production in India to a level at which the manufacturer will be able to sell steel at a price much below Rs. 180 a ton and still make reasonable profit. A fresh inquiry will be necessary in 1926-7, when the new plant at the Tata works at Jamshedpur has been working for two complete years. By that time, says the report, world conditions may be more stable and the general level of prices may have settled down.

It is important to note, however, that the existing uncertainty and the necessarily conjectural character of the board's estimates lead to the proposal that the government should have power to make the protection effective should necessity arise. "When a marked fall occurs in the price of imported steel," says the report, "an immediate remedy may be necessary, and we think the executive government should have power to apply that remedy at once, for, if the intervention of the legislature were necessary, much mischief might be done before action was taken. The danger of foreign steel entering India at abnormally low prices is, we believe, a real one."

The principal arguments by which the proposals of the board are supported may be summarized as follows:

Steel production satisfies the three conditions for protection laid down by the fiscal commission—the industry possesses natural advantages and prospects of success; without the help of protection it will not develop as rapidly as is desirable in the interests of the country, if at all; and it will eventually be able to face world competition without protection.

The raw materials required exist in sufficient quantities, though some of them, such as coking coal, are not equal in quality to those available in some other countries.

The home market for steel is large and likely to grow.

Manufacture being now carried on at a loss, there is serious danger that, unless protected, it may cease altogether.

India already produces pig iron more cheaply than other countries, and the possibility of producing steel of thoroughly sound quality has been proved. It has not hitherto been found possible, however, to combine a high output with satisfactory quality. As soon as this has been done, the future of the industry is assured.

There is reasonable assurance that at no very remote date Indian steel will be able to hold its own in competition with imported steel without protection.

Tata Company's Troubles

A remarkable passage in the report discusses the difficulties of the Tata Iron & Steel Co. The time occupied

Current Iron and Steel Prices of Europe

Prices Converted into Dollars at Rates of Exchange, June 9

	British Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgian and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Ports	
Export Prices f. o. b. Ship at Port of Despatch—By Cable	£ s d			Francs		Francs	£ s d	
PIG IRON								
Foundry No. 3, Silicon 2.50-3.00	$19.40	4 10 0*	$18.29	360	$17.98	405	$22.63	5 5 0
Basic	19.40	4 10 0	19.30	380	18.20	410	23.71	5 10 0
Basic-bessemer	21.55	5 0 0†	18.29	360	17.32	390	22.63	5 5 0
Hematite, Phosphorus 0.02-0.05	21.12	4 18 0	21.84	430	.....	....	24.78	5 15 0
SEMIFINISHED STEEL								
Billets	$30.17	7 0 0	$23.37	460	$24.86	560	$26.40	6 2 6
Wire rods	47.41	11 0 0	38.10	750	35.52	800	36.64	8 10 0
FINISHED STEEL								
Standard rails	$35.56	8 5 0	$29.21	575	$30.19	680	$31.70	7 7 1
Merchant bars	1.68c	8 15 0	1.29c	560	1.27c	630	1.27c	6 10 0
Structural shapes	1.54c	8 0 0	1.25c	540	1.27c	630	1.25c	6 7 6
Plates, ship, bridge and tank	1.73c	9 0 0	1.73c	750	1.51c	750	1.47c	7 10 0
Sheets, black, 24 gage	2.50c	13 0 0	2.65c	1,150	2.56c	1,275	2.83c	14 10 0
Sheets, galvanized, 24 gage, corrugated	3.42c	17 15 0	4.04c	1,750	4.92c	2,450	3.52c	18 0 0
Bands and strips	2.12c	11 0 0	1.90c	825	1.91c	950	1.86c	9 10 0
Plain wire, base	2.41c	12 10 0	2.31c	1,000	2.16c	1,075	2.05c	10 10 0
Galvanized wire, base	3.17c	16 10 0	3.00c	1,300	2.61c	1,300	2.93c	15 0 0
Wire nails, base	2.79c	14 10 0	2.54c	1,100	2.21c	1,100	2.74c	14 0 0
Tin plate, base box 108 pounds	$4.87	1 2 7	.....	....	.....	....	$6.25	1 9 0

Domestic Prices at Works or Furnace—Last Reported								Renten Marks
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$19.72	4 11 6	$19.56	385 (2)	$17.98	405	$23.56	99
Basic pig iron	19.83	4 12 0	19.56	385 (1)	18.20	410	26.18	110
Furnace coke	5.17	1 4 0	8.77	155	8.44	190	7.62	32
Billets	32.33	7 10 0	24.64	485	24.42	550	29.75	125
Standard rails	1.73c	9 0 0	1.33c	575	1.37c	680	1.53c	142
Merchant bars	1.73c	9 0 0	1.35c	585	1.26c	625	1.56c	145
Shapes	1.83c	9 10 0	1.30c	565	1.20c	600	1.54c	143
Plates, ship, bridge and tank	1.83c	9 10 0	1.62c	700	1.46c	725	1.62c	150
Sheets, black, 24 gage	2.50c	13 10 0	2.65c	1,150	2.51c	1,250	2.91c	270
Sheets, galvanized 24 gage, corrugated	3.25c	16 17 6	4.04c	1,750	4.92c	2,450	3.78c	350
Plain wire	2.69c	14 0 0	2.31c	1,000	2.16c	1,075	2.16c	200
Bands and Strips	2.31c	12 0 0	1.91c	825	2.01c	1,000	2.05c	190

*Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longwy. British export furnace coke £1 4s 0d ($5.17) f. o. b. Ferromanganese, £17 0s 0d ($73.27) f. o. b. The equivalent prices in American currency are in dollars per ton for pig iron, coke, semifinished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

in the construction of the larger of the extensions has exceeded the original estimate by three or four years, and the cost has been much higher than expected. One result has been that the company had to face the fall in prices in 1921 without being able to utilize the new and more economical plant which was being installed.

The board repudiates the suggestion that the supposed need for protection has been created solely by these financial difficulties. The need arises from the difference between the price at which steel is imported and the price at which the Indian manufacturer can sell. The present high cost of production in India is due in part to the delay in bringing the new plant into operation, but it is not due at all to the difficulty in raising capital.

The general principles underlying the recommendations of the board are that the assistance granted to the industry should give the company, when full production is reached, a fair return on capital outlay after meeting all overhead charges (provided that the works expenditure is reduced to a reasonable figure) and that the assistance required to tide the industry over a difficult period should be at a minimum.

India imported a total of 170,867 tons of steel bars and channels in 1923, Belgium supplying 110,725 tons, Germany 31,388 tons and the United States only eight tons. Of the total 75,379 tons of beams, pillars, girders and bridgework imported in 1923, Great Britain shipped 36,593 tons; Belgium 35,854 tons and the United States 455 tons. Great Britain supplied 22,404 tons of the total 22,404 tons of hoops and strips imported in 1923, while the amount from the United States was 1653 tons. Great Britain shipped 144,034 tons of galvanized sheets, of the total 152,424 tons, while the United States' portion was 7628 tons. Of 46,069 tons of tin plate, Great Britain made 40,060 tons, and the United States 5410 tons. Of a total 101,812 tons of other grades of sheets, Great Britain was the source of 61,062 tons, Belgium 22,780 tons, and the United States 290 tons. Great Britain supplied 14,898 tons of the total 17,200 tons of cast pipe and fittings imported in 1923, and the United States 894 tons. The list of imports shows 66,965 tons of rails and fishplates were imported, the source of origin not being stated. This figure is in contrast with 101,934 tons imported in 1922.

Shows Good Net

London, May 31.—The annual report of Sir W. G. Armstrong Whitworth & Co., Ltd., Newcastle-on-Tyne, one of the largest British steelmaking and shipbuilding corporations, just issued, shows net profits of £436,377 ($1,910,000) for 1923, compared with £467,550 ($2,020,000) in 1922. The usual dividend of 5 per cent was declared on the common

Make Dutch Pig Iron Rate To Pacific Coast

London, June 2.—As far as transatlantic business is concerned there is little activity in ocean freight rates. Some charters are being made for carrying pig iron from Europe to the Pacific Coast but only a few parcels are destined to the Atlantic Coast.

The new Dutch blast furnace near The Hague recently obtained orders for about 10,000 tons of foundry pig iron for shipment to San Francisco and it is understood a rate of about 17s ($3.75) per gross ton was developed. Vessel freights on pig iron from European to American North Atlantic points are still 13s 6d to 14s ($2.95 to $3.06) per gross ton with ferromanganese around 15s ($3.30) per ton. Shippers of finished steel find the rate from Europe to Philadelphia or New York between 16s and 20s ($3.50 and $4.37) per ton. From European ports to the Far East including Hongkong, Shanghai, or Kobe, the rate on finished steel is £2 to £2 5s ($8.75 to $9.75) per ton with approximately similar rates to Australia and South Africa, and on finished steel to India about £1 ($4.37) per ton.

There have been few charters for carrying iron ore recently. The rate from Bizerta to Philadelphia remains nominal at 7s ($1.53) per ton, with manganese ore from the Black Sea to Atlantic ports at $4 per ton.

Denies Pittsburgh Plus Is Illegal

Steel Corporation Brief to Federal Trade Commission Analyzes Evidence and Argues Its Insufficiency to Prove Contention—Selling Prices Result of Natural Laws—Asserts Expert Testimony Fails To Prove Laws Are Violated

WASHINGTON, June 10.—Denying that Pittsburgh as a basing point in quoting steel prices has a necessary effect in establishing a uniform delivered price for steel, either in Pittsburgh or at any point out of Pittsburgh, the United States Steel Corp. and its subsidiaries today filed a brief with the federal trade commission in the complaint case of the commission to abolish Pittsburgh plus quotation of prices.

The brief contends that, considering the testimony introduced by the commission in the light most favorable to the commission's contentions, it is insufficient to establish violation of section 2 of the Clayton act or section 5 of the federal trade commission act. It also is declared that the evidence failed to support the statements that competition between consumers has been substantially lessened as a result of the "alleged Pittsburgh plus practice."

"The effect as claimed by the commission of the prices paid consumers for steel was not the effect of the prices paid to the respondent subsidiaries alone but to independent companies as well, with which respondent has nothing to do," continues the brief.

"Indeed there was no attempt on the part of the commission to show by the testimony of witnesses representing consumer companies that by purchases only of steel manufactured at the western and southern plants of the respondent subsidiaries they were prevented from competing with consumer companies which bought only from the eastern or Pittsburgh plants of the respondent subsidiaries.

"Apparently counsel for the commission felt under no necessity to establish any such facts, but concluded that a case of discrimination under the statute was made out, irrespective of the actual place or producer from which steel was purchased simply because the western plants of the respondent subsidiaries manufactured the character of materials used by the various consumer companies or, even to go further, because such materials were manufactured by the western plants of the respondent subsidiaries and by other steel producers whose plants were located in the West.

"It is obvious that the trade commission's examiner recognized this defect in the proof, for with an industry worthy of a better result, if not a better cause, he endeavored to show, and in surprisingly few cases did show, instances where western consumer companies purchased steel manufactured at a western plant of one of the respondent subsidiaries while an eastern consumer company, potentially at least a competitor of the western consumer, at approximately the same time purchased similar steel at a lower price manufactured at an eastern plant of one of the respondent subsidiaries.

"Even in these rare examples there was no evidence even to indicate that the particular steel purchases, made either by the western consumer company or the eastern consumer company, were to be used in manufacturing the particular finished materials upon which the western consumer was an unsuccessful competitor, and these scattered instances are totally insufficient to overcome the great mass of evidence introduced in the record by witnesses called by the commission to the effect that western and southern consumers generally obtained their supplies of rolled steel products from a number of steel producers other than the respondent subsidiaries.

"This was true more particularly as to bars, plates and shapes in the case of western consumers than in the case of the southern consumers, but to a substantial extent it was true also as to the southern consumers. Nor did the situation differ in any material extent as regards consumer companies using sheets, tin plate or wire products in the manufacture of their various finished products. Almost without exception all these consumer companies bought from several producers as well as the American Steel & Wire Co. and the American Sheet & Tin Plate Co., and looked upon such other steel producers as a regular source of supply just as fully as they did the Sheet & Tin Plate Co. and the Steel and Wire Co.

"No evidence was shown that the prices paid other producers to the extent they were similar to respondents' prices were made by agreement combination or understanding between respondents and such other producers."

The brief declares that almost without exception the witnesses representing consumer companies expressed "their total ignorance of the manufacturing costs of their eastern competitors, such as labor charges, overhead, sales expense, capital charges" and other matters.

"It is obvious that the cost of steel is but one factor in the finished cost of the manufactured articles made by these consumer companies in the West or South and by their competitors in the East and it also is obvious that without some knowledge of all the factors going into the cost of finished articles it is impossible to say with any definiteness that the reduction in only one of the cost factors would enable the western and southern consumer companies materially to enlarge their sales territory.

"The lowering of the cost of steel to western and southern companies does not necessarily mean that they would increase sales or widen sales territory,

Nine Points Asserted by Corporation

CONSIDERING the testimony introduced by the commission in the light most favorable to the commission's contentions the evidence is insufficient to establish a violation of Section 2 of the Clayton act.

The testimony introduced in behalf of the commission fails to show any violation of Section 5 of the federal trade commission act.

The Pittsburgh base, its definition, origin, use and convenience.

The prices realized by respondents for the products manufactured at their western plants have been the natural market prices at points of consumption and have in no way been affected by any alleged artificial system of pricing and selling.

The prices charged by the Tennessee Coal, Iron & Railroad Co. for bars, shapes and plates represent at all times a voluntary price concession on the part of the Tennessee Coal, Iron & Railroad Co. to its customers.

The prices obtained by the western plants of respondents for materials manufactured at those plants were obtained as a result of the natural advantage of location of such plants, and not because of any artificial system of pricing and selling.

The development of the production of steel in the Chicago district has been much more rapid than that at Pittsburgh, due to the natural advantage of location of such mills.

The expert testimony introduced in behalf of the commission considered in its light most favorable to the commission's contentions does not even tend to prove any violation on the part of the respondents or any of them of Section 2 of the Clayton act of Section 5 of the federal trade commission act.

The sale of steel by the respondents and the prices realized therefore are not based on any artificial system but are determined by the same factors which govern the sales and prices of other commodities.

for there is nothing to show that eastern consumer companies could not lower their prices to meet such competition."

The brief declares that the prices realized by respondents for products manufactured in their western plants have been the natural market prices at points of consumption and have in no way been affected by any alleged artificial system of pricing or selling. The prices charged by the Tennessee Coal, Iron & Railroad Co., for bars, shapes, and plates represent at all times a voluntary price concession on the part of the Tennessee company to its consumers, the brief states in discussing some of the testimony concerning the sales by this commany. "No competitor in the Birmingham district," the Steel corporation says," manufactures sheared or universal plates. No competitor in the Birmingham district manufactures structural shapes and the Tennessee company did not manufacture them until 1919."

"It is self-evident that as far as plates and structural materials are concerned the prices which the Tennessee company could obtain, if these prices were determined solely by competition, would be considerably higher than those which it actually does obtain. This because the competition in structural shapes and plates would have to come from a point outside the district."

Development of the production of steel in the Chicago district, which has been more rapid than at Pittsburgh, was due to the natural advantage of such location of mills, the brief contends.

Contentions Were Erroneous

Touching upon the testimony of experts in economics called by the trade commission, the brief of the Steel corporation says that assumption on which the testimony of Dr. Frank A. Fetter, of Princeton university, Dr. William Z. Ripley, of Harvard university, and Dr. John R. Commons, of Wisconsin university, were based were erroneous and not supported by the testimony. The theory of the experts that Pittsburgh plus tends to stifle competition and a free market, has only an academic relation to competition as it is understood by business men and the courts, says the brief, adding that based upon actual facts and business experience, every point where there is a consumer of steel constitutes a market for that steel.

It is also held that the sale of steel by the respondent corporations and the prices realized are not based on any artificial system but are determined by the same factors which govern the sale and prices of other commodities. Testimony of Joseph Michaels, buyer and seller of steel scrap, is cited to show that at any given time the price of heavy melting steel and other scrap at all producing points of origin is practically the same, less the freight to the highest market of consumption. Testimony of Charles M. Trench, New York metal broker, likewise is cited to show that zinc buyers and sellers base prices f.o.b. St. Louis, the consumer taking advantage of location in relation to freight charges, and the producer obtaining higher net return on sales at St. Louis than if located in the Joplin ore producing district or at other points farther away, freightwise.

Duluth Files Brief Attacking Practice

Washington, June 10.—Operation of Pittsburgh plus deprives Duluth of its natural advantages as a steel market and offers some "almost unbelievable" illustrations of inequalities, it is declared in the brief and argument on behalf of the joint committee of the civic organizations of Duluth, Minn., intervening in the complaint case of the federal trade commission against the United States Steel Corp. and subsidiaries to abolish Pittsburgh plus.

Review of such portions of the record as have been available, contends the brief, compel the conclusion that Pittsburgh plus is an arbitrary system of fixing and maintaining prices, which system, regardless of origin, the Steel corporation and subsidiaries as the dominating factor in the steel industry, employ to their own advantage. "It appears that the so-called independent mills," continues the brief, "pursue the same practice but this in nowise diminishes the injustice of the system."

Pittsburgh plus as an unearned profit, adds millions of dollars annually to the cost of steel, the brief maintains. Merchant bar tonnage of the Duluth mills in 1920, it is declared, amounted to more than 106,000 tons, of which more than 80,000 tons was shipped and sold in Wisconsin, Illinois, Ohio, Indiana and elsewhere, the surplus production having been four times the tonnage consumed in Minnesota.

"Duluth was thus made open territory not only for Pittsburgh," says the brief, "but every point at which the products of the Duluth mills were sold for less than the maximum charged at Duluth. The artificial and arbitrary restraint of the market under any such scheme of prices has nothing whatever to do with supply and demand, and is opposed to public interest for the security of which laws are passed and should be enforced.

"Will anyone have the temerity to say that public interests are not impaired and do not suffer when the prices of a basic commodity like steel are so controlled through a charge for unearned freight that manufacturers hundreds of miles distant from Duluth can and do procure their raw supplies from the Duluth mills at less than the Pittsburgh plus price at the mill door.

"In 1918 Judge Elbert H. Gary, chairman of the Steel corporation, as the record in this case discloses, described the Duluth mills as 'one of the finest steel plants in the entire world.' Duluth was and is a strategic point—a natural distributive center for a large and growing section. With Pittsburgh plus abolished, it was foreseen, as President Farrell, of the Steel corporation put it, that Duluth would become one of 'several large producing centers' in a class with Chicago and Birmingham. Looking forward to the time when there would be no Pittsburgh plus, the Duluth mills were located for the purpose of taking care of the demands, not only of the Northwestern and Western states, but a considerable part of Canada."

The brief further contends that the present freight rate structure is highly favorable to Duluth and constitutes a natural advantage, which "in all justice must be recognized." "As the matter stands Duluth neither has nor will it have trade territory, either East or West until Pittsburgh plus profits are taken off the price of basic steel."

That Duluth is prevented from becoming a greater manufacturing center because of the operation of Pittsburgh plus also is contended. The testimony of Otto Swanstrom, president of the Diamond Calk Horse Shoe Co., who was a witness at the Duluth hearing, is cited to show that a Duluth base would make it possible to manufacture farm implements, forgings, bolts and nuts, chains and cable and other products which use such material as the Duluth mills supply.

Pullman Co. To Broaden

Pullman Co., Chicago, car builder, operator and owner, is working on a plan to separate its carbuilding from its sleeping car business. Due to several directors of the Pullman Co. being on the boards of railroads, the Pullman company is compelled by the law governing interlocking directorates to do business on a competitive basis with these roads. The segregation of the two branches of operation is expected to relieve this impediment. The largest part of the property to be segregated is the plants and assets purchased from Haskell & Barker Car Co. in 1922.

Believes Depression Is Near End

Mood of "Unjustifiable Depression" Has Lasted Long Enough Declares James A. Farrell at Eleventh Annual Convention of National Foreign Trade Council—Outlines America's Problems in World Commerce

BETTER business is immediately ahead, according to James A. Farrell, president of the United States Steel Corp. and also president of the National Foreign Trade council in his address which opened the Eleventh National Foreign Trade convention at Boston. Under the subject of "Wider Markets for American Prosperity," Mr. Farrell pointed out how important to this country's domestic trade is the development of an adequate foreign trade.

"I look for a period directly ahead," said Mr. Farrell, "which will see a more determined effort than ever to establish our trade in markets to which we have not heretofore given the attention they deserve."

Over 1500 delegates from all parts of the country attended the convention and the program included many papers on various phases of United States foreign trade. E. N. Hurley, former shipping board head, said that advertising was an important factor in any foreign trade program. W. Irving Bullard, vice president of the Merchants National bank, New York, talked on the relation of foreign departments of banks to the country's export trade. H. H. Morse, of the bureau of foreign and domestic commerce at Washington, spoke on "Finding the Prospect." D. W. Fernhout, export manager of Manning Abrasive Co., told how to close sales with foreign customers. Walter F. Wyman, export manager of Carter's Ink Co., brought out an interesting point in connection with refund of duty on export articles manufactured of foreign raw material.

In his address, Mr. Farrell stressed the need of foreign trade which he declared must be maintained to a certain degree in order to keep our mills and factories busy and the workers of this country employed. American industry, he said has a favorable reputation abroad.

Discussing the European situation and the possibilities of extending our foreign trade, Mr. Farrell said in part:

"Of our $82,707,000,000 foreign trade in the last 10 years $52,187,000,000 were exports and $30,540,000,000 were imports. The excess of merchandise exports over imports in that period was more than $22,318,000,000. That has some bearing, I may suggest on the change in our economic status from a debtor to a creditor nation. It discloses the fact that we have progressed to a stage where there is another reason for foreign trade than the mere satisfaction of the needs of our people for things they do not or cannot produce themselves. This other reason is an equally imperative need to sell some part of what they produce to other peoples.

"For the present, and as long as conditions of inflation continue, especially among the more active of the industrial nations, we suffer under the handicap of their lower productive costs. This is particularly true in Germany, where, in the last few years, the chief industrial plants have paid off their bonds and mortgages in depreciated currency and are free from that important element of overhead. Other nations may have different elements of advantage. Belgium and France have it to a lesser extent. The British have more widespread systems of communication and more greatly ramified financial institutions with which to serve their international commerce. The development of such facilities should occupy part of our effort."

"Moreover some of the largest lines of industry in this country are dependent absolutely upon the supply of raw materials from foreign sources, because this country does not and cannot produce such raw materials.

"The first items in the table of imports for 1923, according to value, were raw silk, cane sugar, coffee and crude rubber. Three of these items are not producible in the United States. The other, cane sugar, is produced to a limited extent, and is supplemented by a considerable production of beet sugar. But the total American production of sugar is only a minor fraction of our consumption, and huge importation is necessary to meet the needs and wants of our people.

Four Items Important

"The four items constituted 30 per cent of our total imports last year. There are about 500 establishments for the manufacture of rubber in this country, and more than 1325 silk plants. Together they employ about 250,000 workers, who earn more than $200,000,000 a year in wages.

"We are not to retire from foreign trade because Europe is not now able to continue her accustomed rate of buying and selling. As our requirements in raw materials increase while Europe's ability to produce them either diminishes or fails to keep pace with our growing demand, it is the course of ordinary prudence on our part to expand our activity in seeking such materials in other markets of supply. This is a very important factor of our situation today.

Must Pay in Exports

"The total gold stock of this country at present is, roughly, $3,706,000,000. That is about $85,000,000 less than our total imports for 1923. Imports must be paid for, and they are paid for either with gold or with exports. If our imports of last year had been paid for with gold the entire gold stock of the country would have been shipped to foreign nations, with consequent complete disruption of domestic commerce. Of course, such a thing could not happen. Other measures would be taken, of various kinds to obviate the necessity for shipping gold.

"We pay for our imports with our exports. We must have the imports if we are to provide the first requisite of prosperity—occupation. In furnishing payment for them our exports render a steady and very great service to all our people.

Figures Show Growth

"Conclusive evidence of the growth of American export trade in the last two decades is furnished by the fact that 20 years ago nearly 90 per cent of our exports were produced by less than 20 concerns, while the 100 chief exports of 1923 represented only 85 per cent of the total exports, and they were the products of wide diversification of manufacture. A great deal of intensive study has been given to the subject in these 20 years, and that is one of its results."

Report Small Increase in Accident Rate

Sixty-eight steel companies, machine shops and foundries, and other heavy metalworking industries comprising partial membership of the metals section of the National Safety council, show relatively small increases in accident rates in comparison with the increase of hours worked in 1923 over 1922. The companies included in the report are those which reported in both years.

The increase in the number of hours worked in the industries covered by this survey, which employed about 80,000 men in 1923, was 9½ per cent, while the increase in frequency rate was only 3½ per cent. An increase of 11 per cent in the severity rate was due to the increase of three in the number of fatalities.

Another cause for the increase in severity rates is the more accurate reporting of permanent disabilities, especially by the smaller companies, due to the use of a new report form which emphasizes more clearly the heavy charges of lost time for permanent disabilities.

The Frontier Spring Corp., 378 Oak street, Buffalo, N. Y., has filed a voluntary petition in bankruptcy with liabilities listed at $64,497 and assets of $5085.30.

IRON TRADE REVIEW
Registered U. S. Patent Office
The Authority of Industry National and International

Charles J. Stark, - - - - - - - - - - Editor
Earl L. Shaner, - - - - - Engineering Editor
John D. Pease, - - - - - Advertising Director

Published Every Thursday by
THE PENTON PUBLISHING CO., CLEVELAND, O.
Member, Audit Bureau of Circulation, Associated Business Papers, Inc., and National Publishers Association

BRANCH OFFICES
BOSTON - - - - - - - - - - 426 Old South Bldg.
CHICAGO - - - - - - - - - - 1147 People's Gas Bldg.
CINCINNATI - - - - - - - - - - 504 Edwards Bldg.
NEW YORK - - - - - - 2203-2206 No. 220 Broadway
PITTSBURGH - - - - - - - - - 2148-49 Oliver Bldg.
SAN FRANCISCO - - - - - - - 675 Monadnock Bldg.
WASHINGTON - - - - - - - - 84 Home Life Bldg.

FOREIGN OFFICES
BIRMINGHAM, ENG. - - - - - - - - Prince's Chambers
LONDON, ENG. - 2-3 Caxton House, Westminster, S. W. I.
PARIS, FRANCE - - - - - 23 Rue de la Bienfaisance
Cable Address IROTRAPEN, London, IROTRAPRI, Paris

Subscription, United States, Cuba and Mexico, $6 per year. Canada, $8.50 per year. Great Britain and other countries, £2:0:0 per year

Entered at the Postoffice at Cleveland as Second Class Matter
Copyright 1924 by The Penton Publishing Co.

Congress Adjourns, Country Rejoices

AFTER six months of furore, political by-play, much flouting of plainly expressed public opinion and little constructive accomplishment, congress has adjourned until December, leaving untouched many of the public questions which had been pressing for solution and other questions which manifestly were better to be left untouched by the passing congress as constituted. It was demonstrated in this session without doubt that group or bloc government had replaced party government. President Coolidge stood almost the single-handed champion of conservative doctrine.

The administration of leadership which championed the cause of the so-called conservative business interests of the country was doomed by the temper of the recent congress. Congress usually tries to legislate to get direct response from the largest number of people, and while proposals for the sound conduct of business prove, in the end, of economic benefit to the greater number of persons, the house and senate, fail to accept such a view.

Hope is expressed that some of the undesirable features of the new tax law may be changed by legislation within the next year or two. An immigration bill finally has been passed, which is considered sound and helpful in view of the objects sought by those who framed it. The freight rate question did not materialize into tangible legislative form. The Howelll-Barkley bill was thrown into the next session, much to the relief of those who saw in it the designs of the railroad labor unions to sway labor and wage decisions through the proposed organization of a new rail labor board. The opening blare of the oil investigation simmered down to a quiet and fairly rational report a few days before the senate adjourned.

The country will have a chance to vote for a number of new members of congress in November. This session of congress should have awakened a new sense of responsibility in the hearts of citizens. Self-seeking, unfit, unfair demagogical and dangerous senators and representatives should be replaced by those in whom more fairness and competence may be reasonably expected. And the next session should be much more than a program of obstruction on the part of the "outs" against anything proposed by the "ins."

1923 Breaks Many Records

BROKEN records in the iron and steel industry have not been so numerous in recent years. Hence the statistical story of 1923 with its long list of new high marks in tonnage having been achieved especially is impressive. Finished rolled steel production in 1923 according to the official record recently set forth was the greatest in history, exceeding by a fair margin the previous record of 1917. Steel ingot production last year by the small margin of probably one-quarter of 1 per cent failed to equal 1917. In open-hearth ingots, however, both 1917 and 1918 were exceeded by a considerable margin. In steel castings, the past year was slightly ahead of the previous records of 1916 and 1917.

It is interesting to note how the different rolled forms contributed to the new record of finished steel output. Not all of them were factors in the same way. In fact, in a number of lines such as iron and steel rails, wire rods, merchant bars, tin and terne plate, the total was less than some other years. The products which were raised to the highest total point in their history were plates and sheets grouped together, structural shapes, skelp, galvanized sheets, wrought pipe and boiler tubes, concrete bars, etc. The most important single gains were made in structural shapes, showing 3 per cent over the previous record in wrought pipe and tubes with 11.6 per cent and in concrete bars with 18.1 per cent. One of the surprising features of the figures was the failure of merchant bars to hold its own, the 1923 total being less by a very substantial tonnage than in 1920, 1918, 1917 and 1916. The rail tonnage was relatively poor, having been exceeded by 10 other years.

These figures seem to indicate that under the

market conditions of last year, the constructional materials were in the greatest proportionate demand. This is further understood when it is recalled that railroad requirements, building work and oil, gas and water development absorbed about 55 per cent of the total shipments of the mills.

Prices Steadier Than Production

COMMODITY prices constitute a balance wheel between supply and demand. When demand exceeds supply, values tend to rise and when more goods are brought to market than can readily be obsorbed at prevailing prices, sellers are compelled to make concessions.

On June 1 Bradstreet's index was 2.1 per cent lower than it was one month before. It has fallen 8.1 per cent in 12 months. The index number is 16 per cent higher than it was at the low point of the 1921 depression and 33 per cent above the average for 1913.

A survey of all the index numbers and price averages during recent months discloses one significant feature. This is the relative stability of prices contrasted with the extreme fluctuations of production. The decline of prices started in the spring of 1923. It was checked for a few months at the beginning of 1924, but at no time in the last year have the movements of the averages been wide.

Production in many important lines, on the other hand, climbed to steep altitudes and the consequent recession has been extraordinarily sharp. The situation is in striking contrast with that of 1920. Production, following the downward turn in that year, receded gradually. Prices, however, plunged precipitately, dropping more than 40 per cent in 12 months. Overbuying and large unfilled orders had created an illusion of demand which did not exist. Inventories mounted higher and higher. Finally they became unwieldly and the prevailing stringency of credit helped to cause a collossal dumping of goods upon a reluctant market.

This year there has been no forward buying to encourage overproduction. When buying slackened outputs were promptly curtailed, especially in the iron and steel trade. This has checked the accumulation of burdensome inventories. Moreover there is no credit stress. Money rates this week have fallen to the lowest point in nearly six years. Consequently price adjustment is taking a more sober course and there is unlikely to be any great shock of drastic liquidation. This indicates a relatively mild reaction. With deep cuts in production, equilibrium of supply and demand and steadier price levels may not be far distant.

Saving Labor by Machinery

WHILE American steelmakers always have been in a receptive mood to the introduction of labor saving equipment, the tendency toward the installation of mechanical handling apparatus has been more pronounced in the last four years than in any period of equal length in history.

The extent to which machinery has supplanted manual labor is well outlined in the article by G. H. Charls in this issue. It will be noted that most of the improved devices mentioned are of comparatively recent adoption. Moreover, to those familiar with the equipment of the average steelworks or rolling mill, it is apparent that much of the machinery listed by Mr. Charls is by no means generally employed in the industry. Evidently, it has remained for the more progressive companies to try out and install new devices, while others less willing or perhaps unable to undertake the risks of pioneering, adopt the new methods only after they have been proved satisfactory.

Considering the great expense of experimental work in the iron and steel industry, it is unfortunate that the burden is carried by a few companies. While it is true their initiative and enterprise is rewarded in a distinct advantage in operating costs over their less progressive competitors, this advantage sometimes is short-lived. Mr. Charls is right in saying that the war taught that the greatest success is accomplished through the application of unselfish effort in behalf of a worthy cause. If this spirit could prevail in the development of labor saving devices, iron and steel production soon would be elevated to a higher plane of efficiency.

India Adopts Steel Tariff

MANUFACTURERS of iron and steel in the United States are likely to sympathize with those of India in the newly enacted protective tariff which is designed to enable the home industry to place itself on a firm basis to meet outside competition. In earlier days American producers were thus favored more so than they are or need be today, and under the protection afforded by tariff duties, gained strength to maintain themselves. The tin plate industry is a shinning example of the effect of wisely administered tariff protection.

India has the raw materials and in a lesser degree, the market but has not yet perfected its plant facilities to obtain quality and production simultaneously. Work now under way promises to bring this about. In the meantime imported iron and steel is said to be forcing Indian makers to take a loss in their operations and continance of this will tend to discourage production.

The new duties are calculated as sufficient to bridge the gap between foreign delivered prices and domestic production costs, plus a reasonable profit, until conditions have made such aid unnecessary.

The United States exports relatively little steel to India, England and Belgium being the source of most of the present imports of that country. Interest of American producers, therefore, is academic and rests almost solely in a desire to see the world industry developed to its fullest extent and established firmly where raw material resources and adequate markets are to be found.

Cost Reporting

Again Brought Before Court—Commission Asks Rehearing

Washington, June 10.—A petition for rehearing in the so-called tobacco cases has been filed in the United States Supreme Court by the federal trade commission. The recent decision in these cases was to prohibit the commission from conducting "fishing expeditions" into private business documents. The cases are of considerable significance to the iron and steel trade, as the same issue is involved in the Claire Furnace Co. cost reporting case. The petition says:

"No more vital matter can be presented to this court than the right of the government through its duly constituted agencies to acquire the information, without which it is impossible effectively to administer the laws, whose object is the protection of the public interest through the enforcement of sound public policy.

"Only the most necessary constitutional prohibition should restrict this inherent and essential power. The question presented is so serious and the effect of its present determination so far reaching that we respectfully suggest it is entitled to repeated consideration by this honorable court.

"What the court has decided was whether the commission has an unlimited right of access to and inspection of corporate records. The commission did not claim such a right and was not attempting to exercise it.

"The question before the court was whether a writ of mandamus should issue to enforce compliance with a limited demand for production and inspection of documents in a proceeding against a corporation which was being conducted under separate statutory power."

The power mentioned included a senatorial resolution, which did not charge violation of law. The petition was prepared by Solicitor General James H. Beck, department of justice, and William H. Fuller, chief counsel, federal trade commission.

Hydraulic Doing Better

The receiver for the Hydraulic Steel Co., Cleveland, in a report covering April operations, shows net sales of $583,496 and net profit of $53,895 after expenses, but before interest. Sales for the period from Oct. 27, 1923, to April 30, 1924, were $3,149,078 and net profit $263,904.

Report Ore Surplus

The trustees of the Great Northern Iron Ore Properties, St. Paul, report total receipts from all sources for the year ended Dec. 31, 1923, of $4,704,640. The trustees during the year paid two dividends aggregating $4,500,000, while administration and other expenses amounted to $84,935, making total disbursements of $4,584,935. As a result a surplus of $119,705 was reported for the year. The general balance sheet on Dec. 31, 1923, shows current assets of $3,735,609 and current liabilities of $803,059.

To Extend Works

Brussels, May 31.—The Acieries Reunies de Burbach-Eich-Dudelange, one of the principal iron and steel concerns of the Grand-Duchy of Luxemburg, is contemplating an increase of its capital. According to an official of the company, the principal reason for taking this action is to increase the output of finished steel products. This result will be obtained, either by extending the existing plants or by controlling a number of transforming mills. For instance, the Arbed already has acquired an interest in the Clouterie et Trefilerie des Flandres, a wire products works.

The present condition of the Arbed is satisfactory, 20 blast furnace stacks out of 23 are operating and production is the highest since the organization of the company. Order books are filled for several months ahead at remunerative prices. It is expected that dividends for the fiscal year 1923-24 will be 150 francs as against 120 francs for the preceding year.

Index to Business Trend Charts

THIS ISSUE

Subject	Page
Iron and Steel Foreign Trade	1554
Pig Iron Situation	1554
Car Orders	1555
Freight Car Movement	1555
Commercial Failures	1556
Electric Power Production	1556

REFERENCES

Building Cost Index	June 5
Employment Index	June 5
Farmer Purchasing Power	June 5
Index of Basic Production	June 5
Steel Castings Bookings	June 5
Steel Price Index	June 5
Automotive Production	May 29
Foreign Exchange	May 29
Independent Sheet Situation	May 29
Merchant Pig Iron	May 29
Railroad Earnings	May 29
Wholesale and Retail Prices	May 29
Building Construction	May 22
Business Index	May 22
Foreign Trade	May 22
Steel Orders and Prices	May 22
Bradstreet's Index	May 15
Monthly Ingot Production	May 15
Wage Production	May 15
European Conditions	May 8
Mail Order Sales	May 8
Iron and Steel Price Parity	May 1
Security Prices	May 1
Monthly Coke Output	April 24
Structural awards	April 24
Bonds and Interest	April 3
Bank Clearings	March 27
Corn and Wheat Prices	March 27
Monthly Commodity Prices	March 13
Foundry Pig Iron	March 6
Monthly Alien Migration	Feb. 14
Freight Factor	Nov. 1
Coal Production	Nov. 8
Steel Earnings	Nov. 8

Coke Depression Reaches More Acute Stage

Washington, June 10.—The depression in the coke industry became more acute in the week ended May 31, and production dropped to 137,000 net tons, says the geological survey. This was a decrease of 20,000 tons, or nearly 13 per cent. At the present rate of production, the output in a week is less than was produced in two and a quarter days at this time last year. The decrease, while centered in Pennsylvania, Ohio, and West Virginia, was general in all districts except Virginia, where there was a slight increase, and in Colorado and New Mexico, where there was no change. The comparative weekly output follows:

	Week ended May 31, 1924a	Week ended May 24, 1924b	Week ended June 2, 1923
Pennsylvania & Ohio	98,000	114,000	323,000
West Virginia	4,000	7,000	20,000
Alabama, Kentucky, Tennessee & Georgia	19,000	20,000	24,000
Virginia	8,000	7,000	14,000
Colorado & New Mexico	5,000	5,000	8,000
Washington & Utah	3,000	4,000	6,000
United States total	137,000	157,000	395,000
Daily average	23,000	26,000	66,000

(a) Subject to revision. (b) Revised from last report.

The production of soft coal continues to gain, but the totals remain below the production records made in 1921.

Discuss Moline Plans

Plans for the reorganiation or the liquidation of the Moline Plow Co., Moline, Ill., are being considered by a committee of four members, according to an announcement by Frank W. Wetmore, chairman of the company's board of directors. George N. Peek recently resigned as president of the company. Readjustment of the company's affairs are in the hands of H. S. Johnson, R. W. Lea, H. B. Dinneen and P. H. Noland.

Map Transportation Needs

Atlanta, Ga., June 10.—The Southeast Shippers' Regional Advisory board held its first annual meeting in Atlanta, June 10, with representatives of many leading industries in attendance. The organization was formed about a year ago to deal with problems affecting shippers and carriers. Plans were discussed for handling the increased transportation in the fall. The chairman of the various commodity committees also presented the needs of their industries during the coming several months.

E. M. Cole, traffic manager, American Cast Iron Pipe Co., Birmingham, is chairman of the iron and steel committee.

The Business Trend

June 12, 1924

BY JOHN W. HILL, FINANCIAL EDITOR

JUNE has brought further signs of industrial curtailment, the unwept demise of congress and great ado over the party nominating conventions.

Upon the head of congress has been heaped most of the coals of blame for business reaction. Hence its passing is regarded as a favorable business development. In truth, however, congress has done little more than accentuate already adverse sentiment.

Congress has directed no serious blow at prosperity. Most of the radical proposals, including those for unsound farm relief, and restrictive railway legislation, have failed.

Constructive measures have been tax reduction and provision for needed improvement of the consular service. The tax law has many defects, and later revision may be necessary. Yet it has the supreme merit of cutting off $761,000,000 from the nation's tax bill in the next two years.

Steel Is an Index

In the historic recession of pig iron and ingot production in May is seen a trustworthy measure of the extent of general industrial curtailment in the country. Iron and steel are universal metals. They flow, as raw materials, into innumerable products.

Week-to-week buying and the lack of unfilled orders have kept iron and steel producers' ears close to the ground of demand. Therefore, when buying began to subside the fact was quickly reflected in reduced outputs. This fortunately choked off overproduction in good time.

The result inevitably will be better equilibrium. Already a flutter of activity has appeared in pig iron. Textiles also are displaying more firmness after extended depression.

Auto Output Lower

That demand for steel has receded is evident from records of at least two most important consumers. One is the automobile industry and the other the railroads. Estimates of May automobile output indicate a drop of 19 per cent from April and of 23 per cent from May, 1923.

Railroads are retrenching, as shown by the 511 car awards in May, the smallest number since December, 1921. Sentiment has been cheered, however, by the failure of congress to pass any of the 233 hampering railroad bills introduced.

June 1 commodity price indices show further recession. The drop continues exceedingly moderate, however. The lack of business stress is reflected in easy money rates and smaller liabilities for failed companies. The stock market remains lifeless.

The Barometer of Business

Weekly Comparison

	Last week	Week before	One mo. ago	One year ago	1913
Business Failures..	303	410	384	227	...
Cash ratio Fed. Res. System %.	82.2	82.7	82.0	75.7	...
Loan rate, 4-6 mos N. Y. %	4-4¼	4-4¼	4-4¼	4¼-5	5¼-6
Aver. 25 industrial shares	$105.31	$107.10	$107.49	$105.94	$58.19
Aver. 25 railroad shares	$63.09	$63.52	$61.93	$60.95	$82.91
Aver. 40 bonds ..	$78.92	$78.98	$78.40	$78.20	$93.00
Car loadings, week ended May 24 .	918,213	913,407	878,892	1,014,029	*862,074
Bank debits, 246 cities (000 omitted)	$9,058,397	$9,132,532	$10,455,384	$10,212,350	.....

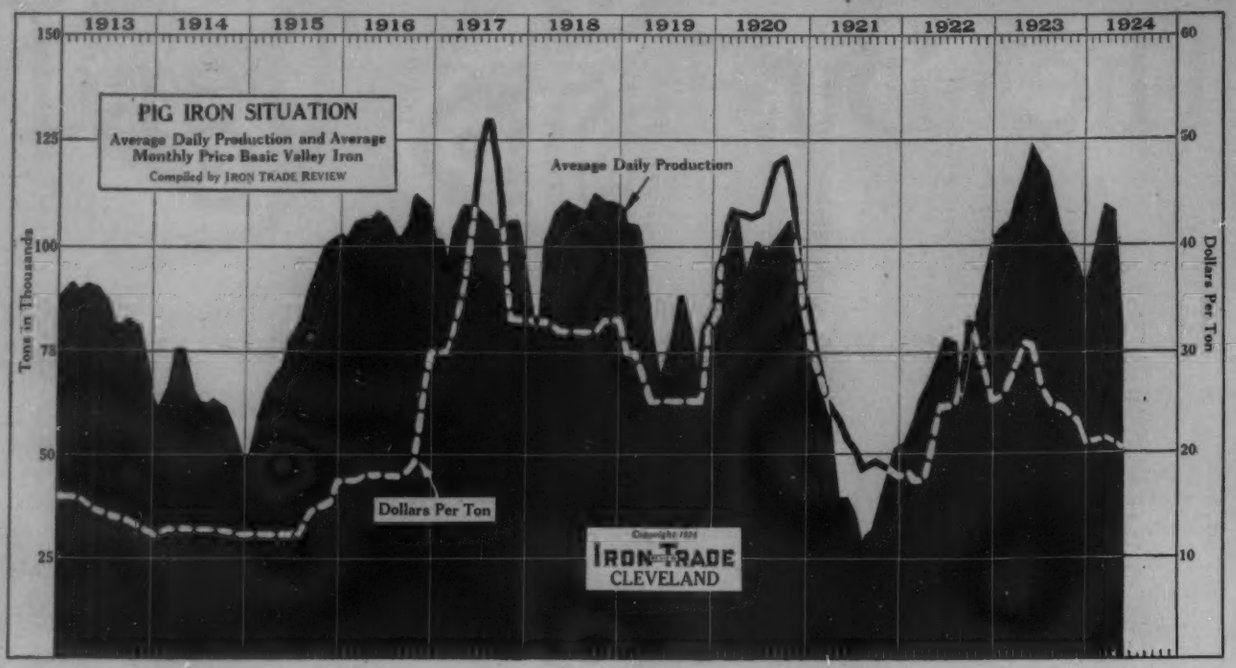
Foreign Exchange (Demand)

	Normal	Last week close	One week before	One month ago	One year ago
*1920					
Sterling	$4.86	$4.31	$4.31	$4.33	$4.60
Francs	19.3c	5.11c	5.12c	5.78c	6.39c
Lira	19.3c	4.35c	4.34c	4.43c	4.61c

Monthly Comparison

	May	Month before	Year ago	1913
Dodge Building awards in 27 states (sq. ft.)	*$63,347,400	68,425,100	65,378,100	Mo. average 31,250,000
Business failures:				
Number	1,816	1,707	1,530	1,336
Liabilities ..	$36,590,907	$48,904,452	$41,022,277	$22,732,000
Exports	*$348,000,000	$339,674,106	$325,492,000	$233,195,000
Excess of gold imports	*$44,027,000	$34,606,000	$8,533,000	†$630,716
Bureau of labor price index ..	*148	150	159	100
Bradstreet's price index	133	135.8	144.8	100
Economist's British price index	166.6	170.6	161.5	100
Nat'l Industrial Con. board living cost index	*161.8	163.5	159.1	‡100
New incorporations	$519,897,000	$528,900,000	$817,230,000	$49,301,000
Railroad net earnings	*$61,821,900	$80,239,885	$83,515,300	$59,301,000

†Excess of gold exports. ‡July, 1914. *April.

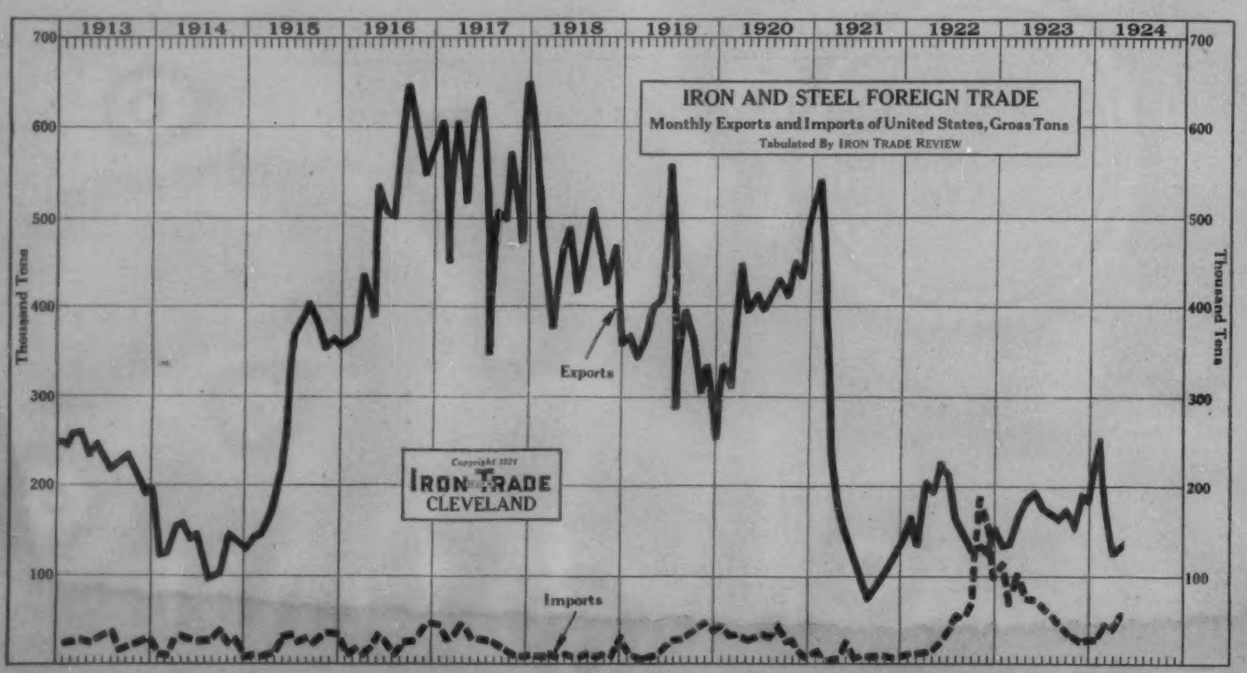


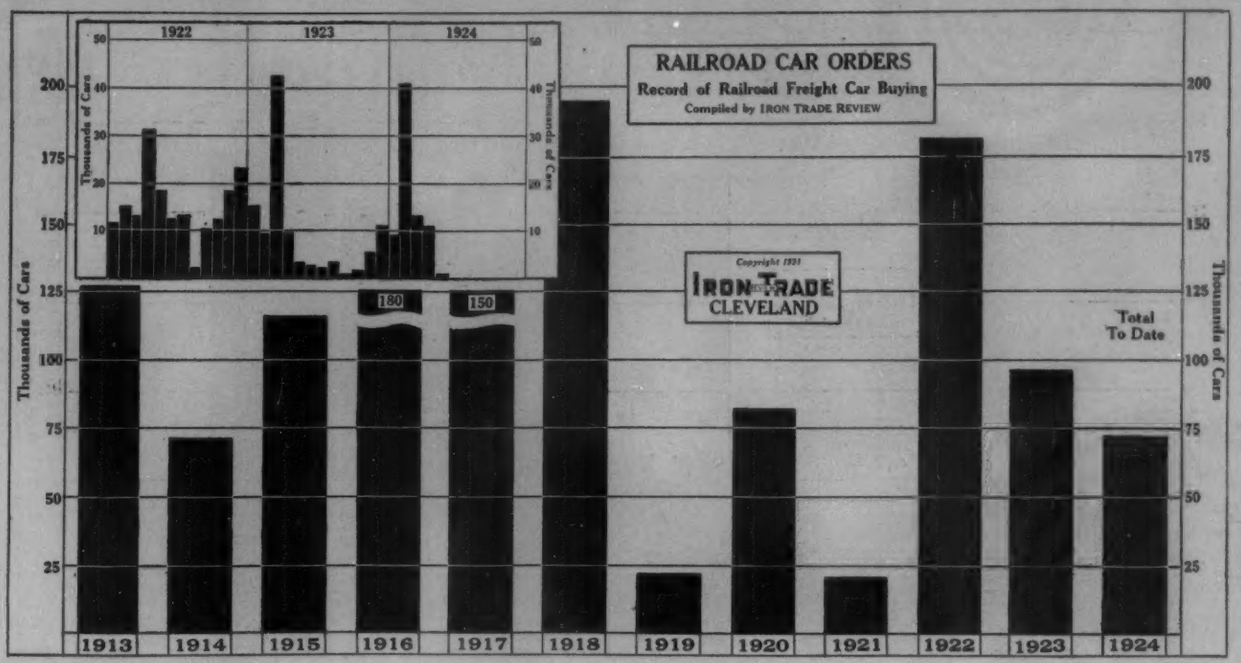
Pig Iron Situation

THE daily average rate of pig iron output dropped 22,658 tons to a level of 84,879 tons in May. This was a decline of 21 per cent. It was the most sweeping loss ever recorded for any month in the history of the industry. During May 46 blast furnaces joined the inactive list. The May output was nearly three times as great, as it was at the low point of the 1921 depression, and 117 more furnaces are producing now than at that time. Prices have dropped to attractive levels.

Steel Foreign Trade

APRIL brought a large increase in imports of iron and steel and a smaller gain in exports. The aggregate of imports was 50,975 tons, a gain of 30 per cent over March and the largest total since July, 1923. In April, 1923, the imports amounted to 77,909 tons. Increased buying of foreign rails, ferromanganese and tubular products explain the heavier imports. Exports reached 132,739 tons, a gain of 6 per cent over March. They were smaller than the 179,159 tons for April, 1923.



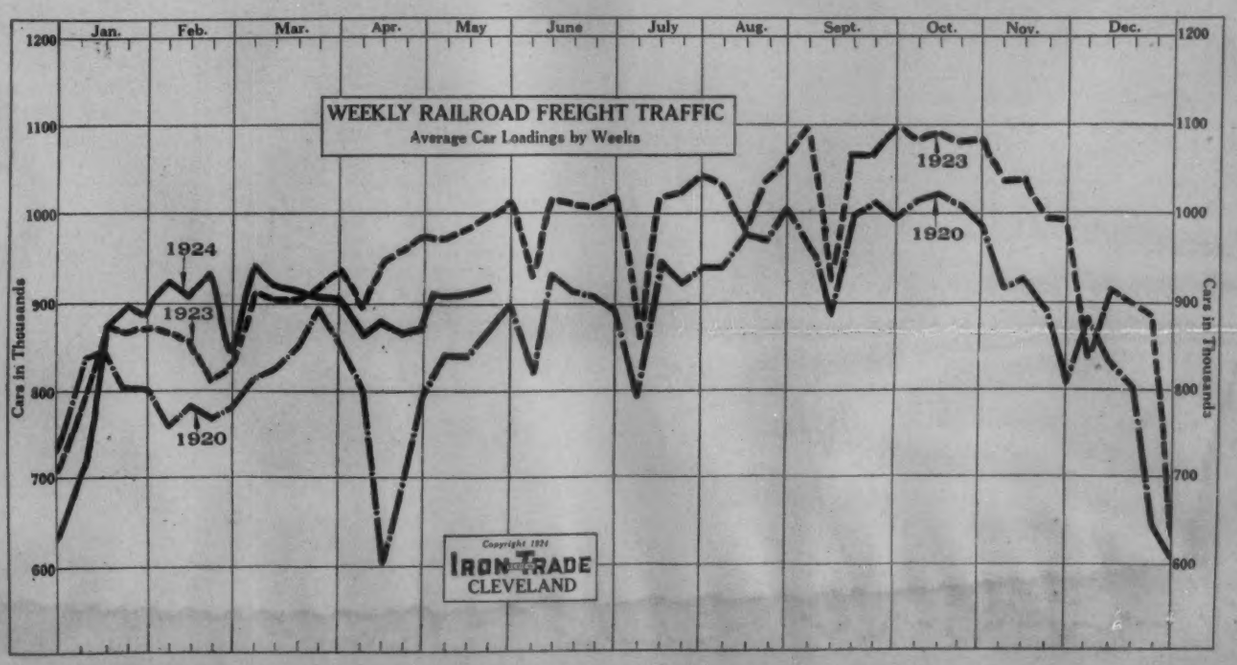


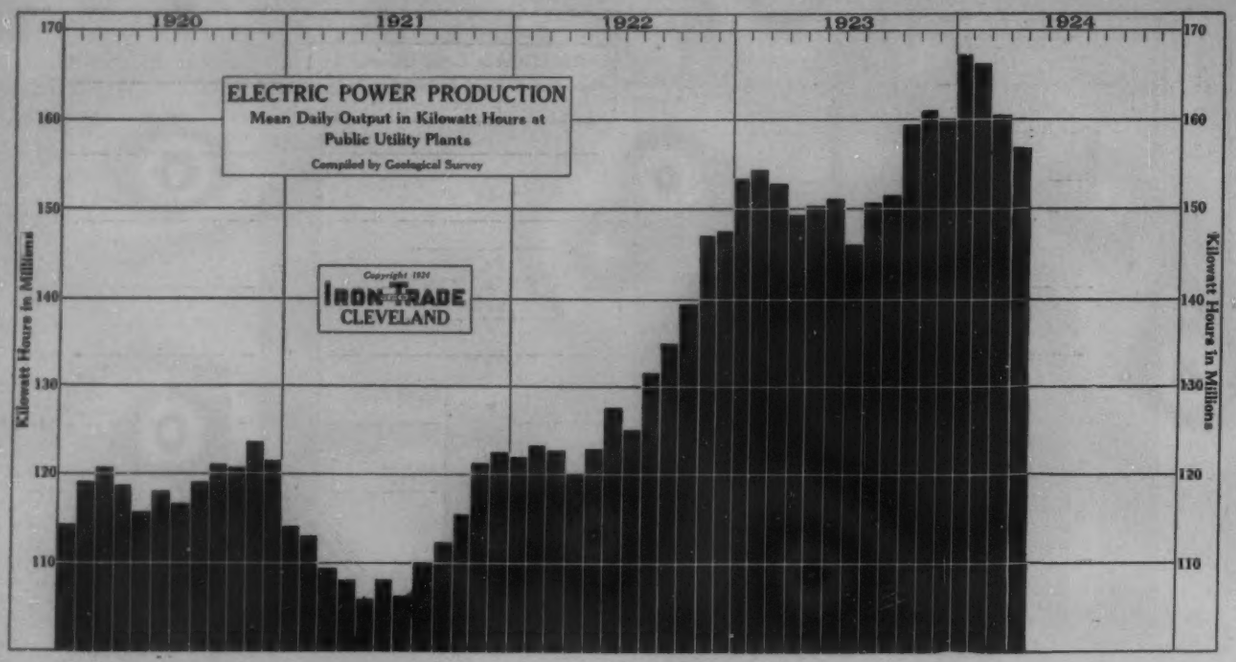
Car Orders

RAILROADS have adopted a rigid policy of retrenchment in the purchase of new equipment. In May the number of new freight cars ordered was only 511. This compared with 10,253 in April and 9800 in May, 1923. The monthly average for the first four months of the year was approximately 17,000 cars. The May awards were the smallest for any month since December, 1921. The number of awards in the first five months of 1924 was 73,466 cars against 86,399 cars in the same period of 1923.

Freight Traffic

FREIGHT car movements have been risin since the second week of May. In the week ended May 24 the total reached 918,213 cars, the highest level for any week since March 8. The gain is largely accounted for by increase in the rail movement of coal and of ore. Compared with the corresponding week of 1923 there is a loss of 96,000 cars or 9 per cent in loadings. In that week last year the movement crossed the 1,000,000-car mark for the first time in any spring. Current loadings exceed all years save 1923.



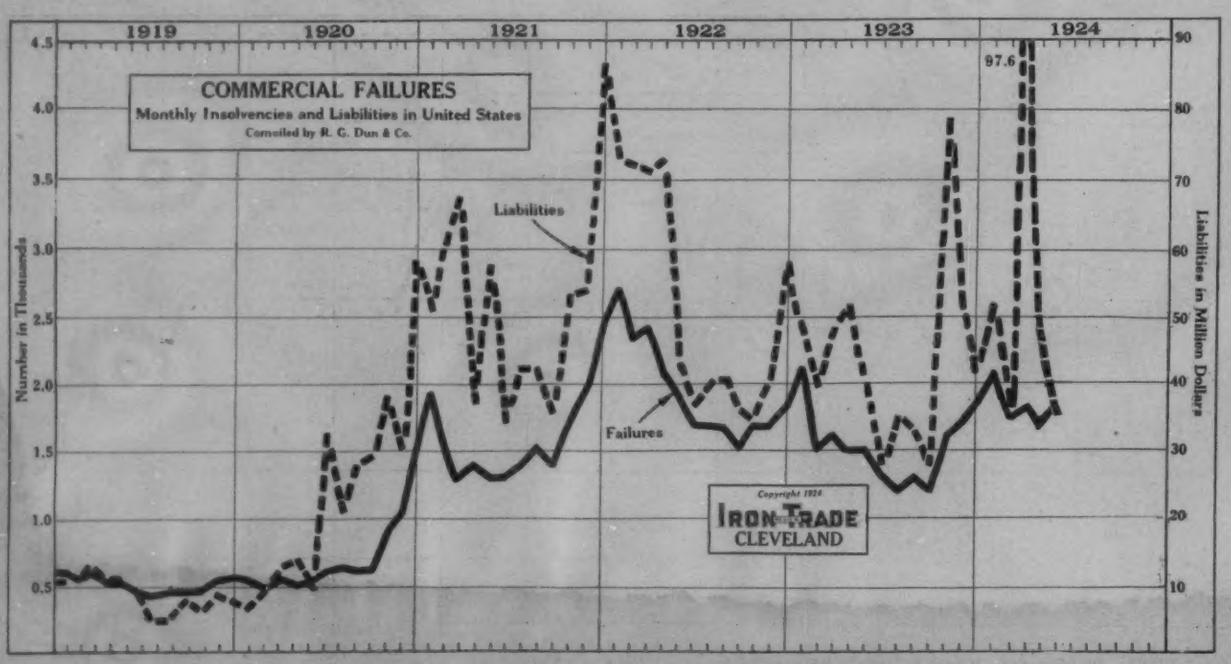


Electric Power

THE production of electric power, consumed by industrial plants throughout the country, is highly regarded as a faithful measure of industrial activities. The output of electricity has been steadily declining since January. The average daily production of power in January reached a new high level at 167,400,000 kilowatt hours. February brought a small decline. The drop in March was more extended and in April the recession amounted to 1½ per cent from March. The rate was 5 per cent below January.

Commercial Failures

BUSINESS is passing through a period of readjustment but the usual shock and jar of financial stress fortunately is lacking. This is shown by the record of monthly business failures. In May the number of insolvencies reported by R. G. Dun & Co., was 1816, compared with 1707 in April and 1530 in May, 1923. The gain in number, however, was not matched by an increase in liabilities of defaulted companies. These fell from $48,904,000 in April to $36,590,000 in May, a decline of 26 per cent.



How English Test Big Forgings

Stresses Encountered by Turbine Rotors and Other Large Forgings Have Led British Steelmakers to Examine Core by Means of Special Optical Instrument—Defects Usually Develop Along Axis

FOR the construction of large turbo-generating units, high speed reduction gears, and powerful steam turbines for both land and marine purposes, forgings are demanded having characteristics which even the most experienced manufacturers find difficulty in meeting. This also is true of gun forgings and other large forgings for present-day engineering requirements. It has been found by experience that many failures develop from internal defects arising from lack of uniformity or homogeneity in the structure of the metal.

The problems involved in this branch of steel manufacture have been given special attention in Great Britain, due to the fact that British engineering works are unusually highly developed for the production of heavy engineering equipment for marine, naval, and land purposes. The problem with which engineers find themselves faced in this connection is twofold: First, there is the question of producing a sound forging, which goes back to production of a sound ingot. Secondly, there is the problem of inspecting and testing the finished forging so as to know whether it really is sound or not. The importance attached to these problems is reflected by the fact that they occupied a prominent place in the presidential address of Sir William Ellis, director of John Brown & Co., steelmakers and shipbuilders, Sheffield and Clydebank, upon the occasion of his inauguration to the chair of the British Iron and Steel institute on May 8. In part Sir William, who was one of the principal designers and builders of the Lusitania and other large vessels, said:

"Problems of considerable difficulty are being met with by steelmakers throughout the country, especially those engaged in the forging industry, owing to the great development which has taken place in electric power stations. Motor forgings of great magnitude and carrying a big load at high velocities are required, and I venture to urge the great importance of the engineer, the metallurgist, and steelmaker conferring together on their design. The steelmaker must be able to understand the importance to the engineer of rotors of a certain design, and it is equally important that the engineer must be able to grasp not only what the difficulties of the steelmakers are in producing the article in question, but the fact that unless there is some modification in his requirement, such as will enable the steelmaker to produce absolutely reliable forgings, trouble may arise in the unsatisfactory working of such machines. This is one of the many instances which makes me feel that the close co-operation between the engineer and the metallurgist is absolutely necessary for the satisfactory development of the steel trade. The more they sympathize and understand each other's requirements and difficulties, the greater will be the success of their results. Engineering as a science has been in existence much longer than metallurgy, and is therefore, on a more finite basis, but metallurgy, although making great strides, has not yet reached full manhood, and tolerance on the part of the engineer and realization of the metallurgists' difficulties are essential for obtaining good results".

The problems to which Sir William Ellis alluded are being dealt with at present in Great Britain on a more satisfactory basis than heretofore by boring a hole through the center of important solid forgings and examining the structure of the steel thus revealed in the interior of the piece. This is an outgrowth of the great progress which has been made in the past few years in examining the quality of metals from inspection of their slightly magnified structure. It is believed by many engineers that as much can be learned of the strength of steel by such examination as with an exceptionally high power microscope.

But the examination of the structure of the bore of a forging, even after the hole is provided, presents difficulties. Until recently the only way to do this was to use a fixed external telescope somthing like an engineer's transit set up to look straight into the bore, in which case the side walls can be examined by means of a 45-

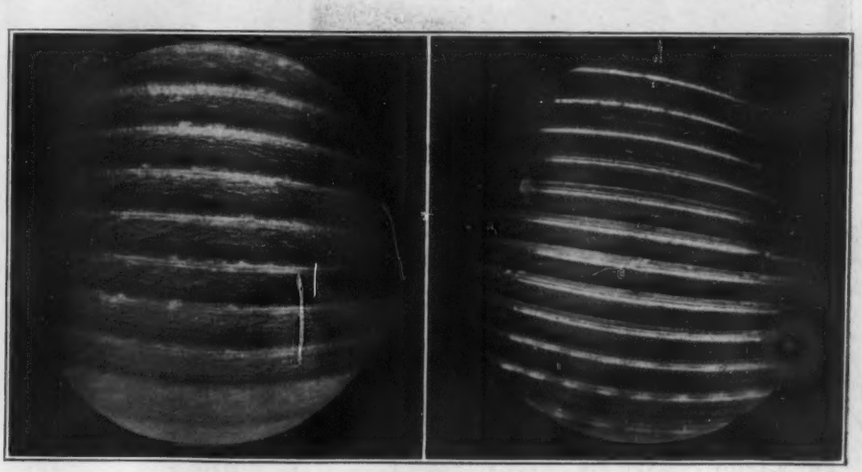


FIG. 2—VIEW OF THE WALLS OF A BADLY WORN 6-INCH GUN. FIG. 3—CRACK SHOWN IN THE RIFLING OF A 12-INCH GUN

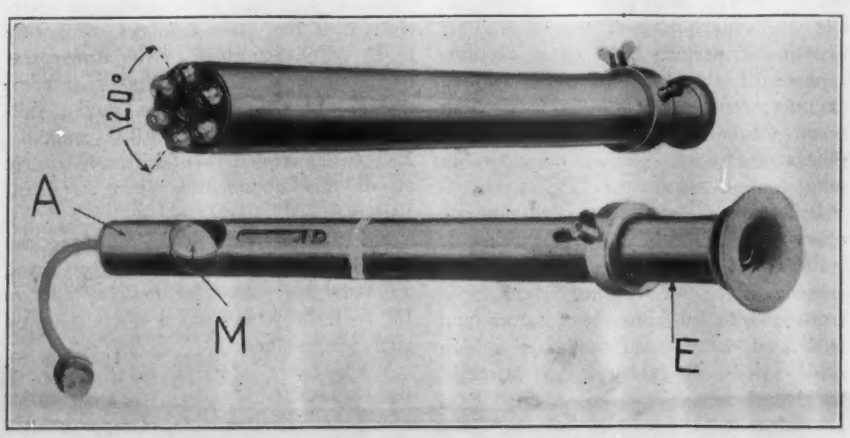


FIG. 1—TWO TYPES OF MAGNIFYING PERISCOPE FOR EXAMINING THE INTERIOR OF FORGINGS

degree mirror which is traversed by an assistant who also manipulates a suitable electric lamp. It is difficult in this way, however, to bring an image of sufficient size to the eye of the observer.

A relatively short time ago this problem was discussed with A. C. W. Aldis, one of the leading British experts on lenses, by Frank Somers, managing director of Walter Somers, Ltd., Birmingham, the Somers company being one of the principal producers in Great Britain of heavy forgings for rotors and other purposes. As a result of this contact Mr. Aldis developed an instrument which for lack of a scientific name, is called the borescope.

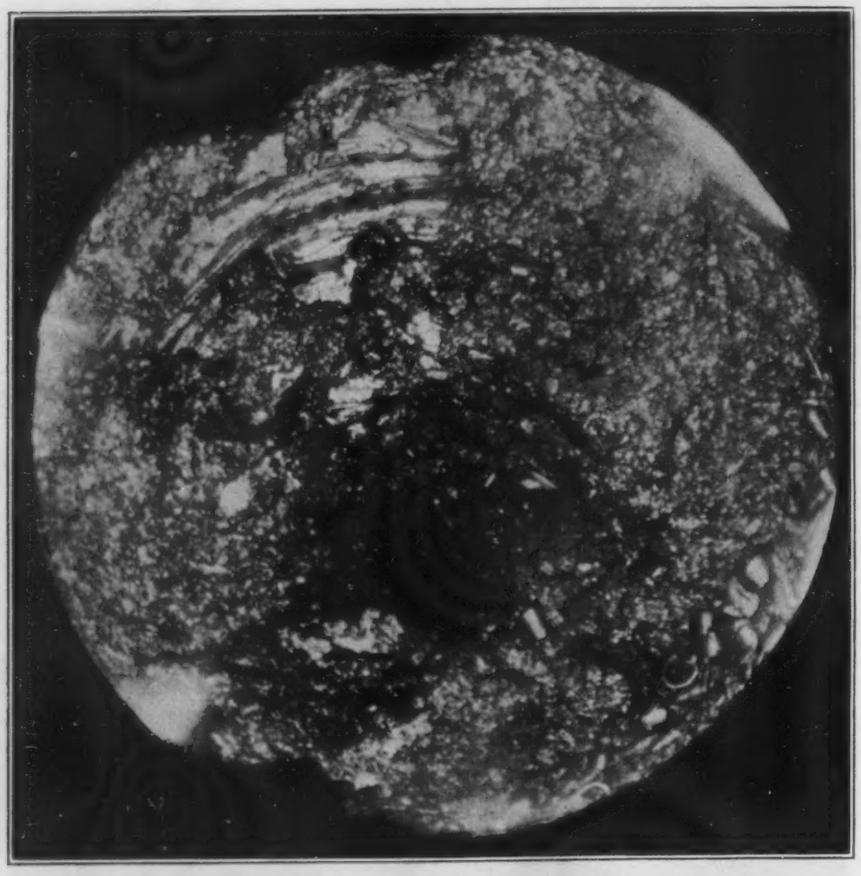


FIG. 4—PHOTOGRAPH OF DEFECT IN A LARGE STEEL ROTOR FORGING TAKEN WITH ALDIS INSTRUMENT INSERTED UP TO THE BLIND END OF 2-INCH HOLE

One form of this instrument, which is in reality a periscope provided with a lens close to the point of examination, was briefly described in IRON TRADE REVIEW, Feb. 7.

The main features of the instrument, which is made by Aldis Bros., Sparkhill, Birmingham, England, is shown in Fig. 1. A small high power electric lamp, *A* is placed in the end of the instrument which is 1.48 inches in diameter by 13½ feet in length. The reflecting mirror *M*, shown in the illustration reflects the image of the steel on the side of the bore through a near-by lens which in turn transmits it through various lenses to the focussing eye-piece, *E*. The latter gives an enlarged view of the steel in the side of the bore. By rotating the instrument and moving it through the bore step by step, every part of the structure in the interior of the forging can be examined.

An alternative form of instrument 1.98 inches in diameter by 10 to 15 feet in length is also illustrated in Fig. 1. It is provided with six lamps on the end as shown which illuminate the whole periphery of the bore. This instrument permits the whole circumference of the bore to be examined at once, much as if one were looking down a tube with one eye, except that the structure is shown considerably magnified.

By means of these instruments every mark, scratch, discoloration, or stain can be seen. The result is the same as if the forging were split from end to end into two halves and examined through a reading glass. In other words, the instrument is intended to give the examiner the sense of having inspected the whole surface of the bore while illuminated, by a powerful magnifying glass. The degree of magnification is uniform. When anything of a suspicious character comes within the field of view it is comparatively easy to examine it in detail and to photograph it if desired. When examining forgings by means of an exterior telescope, it has been found that turning marks have somtimes been mistaken for defects while a bad join-up between borings from either end may also lead to a similar misunderstanding. Close examination of the detail of the interior of the bore avoids these difficulties.

Fig. 4 shows a defect detected by the Aldis instrument in the interior of a large rotor forging. This was taken with the wide angle instrument by direct vision into the blind end of the hole. The cavity was somewhat larger than a 2-inch bored hole. The nature of the defect is clearly indicated. There was nothing on the exterior of this forging giving the least indication of the serious defect in the core revealed by interior examination. As a rule, if a forging has defects they make themselves apparent somewhere along the axis.

British engineers are of the opinion that the slight weakening resulting from the boring of a small hole through the center of a large forging is more than counterbalanced by the certainty that the remaining metal is sound.

Fig. 2 shows how the rifling in a 6-inch gun was worn at a point 6 feet 4 inches from the breech. A crack *C* in the rifling of a 12-inch gun was revealed by this instrument as shown in Fig. 3.

India's Railway Buying Is Increasing

Enlarged and much better opportunity than before the war is given railway equipment companies to sell their products in India as a result of the changed political situation in that country, which has resulted in a liberalization of the strict rules of purchase for the state railways, according to E. G. Gregg, chief of the transportation division of the department of commerce. Purchases for the Indian railways total about $60,000,000 annually, Mr. Gregg stated, and formerly nearly all of this amount was spent in Great Britain.

He pointed out that one American locomotive company now has on hand an order for four locomotives for an Indian railway, and has a special type on trial for another.

While India is two-thirds the size of the United States it has less than 40,000 miles of railways, Mr. Gregg pointed out. He said:

"The needs of the country demand an

expansion of transportation facilities. While most of this business perhaps will go to British companies, a larger share may be obtained by American houses. The market needs careful study because some of the roads are state owned and operated, some state owned but leased to private companies, some have their revenue guaranteed and others are owned by the native states The purchases for the government roads are made according to the strict rules of procedure."

A loss of $10,772 was shown for 1923 by the Youngstown Steel Car Co., Niles, O. Stockholders have been informed the company now has $1,500,000 worth of business on its books.

Direct Reduction Units Nearing Completion

Progress in the installation of an experimental plant by the Ford Motor Co. for the manufacture of steel direct from iron ore by the Bourcoud low-temperature gas reduction method has reached the stage where it now is expected that the initial unit, for gasification of fuel oil or pulverized coal, will be in operation at River Rouge by June 15. The remainder of the plant, comprising the preheating, reduction and electric furnace melting units is expected to be ready for operation a few weeks later. The plant is being built with a contemplated capacity of two to three tons of steel in 24 hours. Plans for the erection of a large plant for tonnage production by this process are contingent on the performance of the initial experimental plant.

Belgian Works Now Fully Restored

BY GUSTAVE TRASENTER

FROM an economic point of view the great war meant for Belgium an occupation of nearly four and one half years during which time the country was cut off from the world markets and deprived of most of its industries and transport facilities. When the armistice came, Belgium appeared completely ruined. The following tabulates the most important steelworks only, of the two great industrial districts of the country, Liege and Charleroi, and shows the damages caused by the enemy.

	Number			
	Existing in 1924	Completely destroyed	Seriously damaged	Preserved or not much damaged
Coke ovens	2554	369	1.192	993
Blast furnaces	59	27	10 + 18	4
Converters	49	25	16	8
Open-hearth furnaces	26	7	—	19
Rolling mills	108	34×(28)	3+(20)	23

In a report on the Belgian steel industry in 1920, the writer said:

"Nearly half of the blast furnaces in the country have been totally destroyed and will not be rebuilt for many years to come. Some of them will never be rebuilt and these figures relating to the fundamental apparatus of the steel trade give a good idea of the importance of the national disaster. The open-hearth furnaces did not suffer very much, having been requisitioned and worked by the Germans. The rolling mills were mostly destroyed, numbers of the most important ones being broken up for scrap. The figures in brackets in the foregoing table are those relating to the 48 rolling mills established in the Hainaut province, whose definite fate is unknown to us.

"The smaller works received similar treatment. Of 100 puddling furnaces only 52 were left. The converters in small steel foundries were generally saved from destruction and out of 30, 25 remained intact. As to the rolling mills of the numerous re-rolling works, of the 79 existing ones, only 28 escaped destruction."

To give an idea of the importance of the steel industry in Belgium, it must be noted that in 1913 the total output of the rolling mills and steelworks amounted to 2,162,210 metric tons of finished products. After the catastrophe and on the heels of the invading hordes, steps were taken immediately to restore the steel industries. The rapidity and wholeheartedness of these efforts astonished the world.

Less than two years after the armistice Belgium appeared once more as a country in full activity. In January 1920, the output of pig iron reached nearly 20 per cent of that of 1913. The steel output was 50 per cent and that of finished products was 30 per cent that of 1913.

New Stacks More Efficient

It was then impossible to produce pig iron in sufficiently large quantities owing to lack of fuel. Work in the open-hearth furnaces was facilitated owing to the abundance of scrap in Belgium, which accounts for the favored situation of iron and steel compared with pig iron. To take an example, let us consider the Ougree-Marihaye Co., Ltd., which owns by far the largest steelworks in Belgium.

In 1920 four blast furnaces out of the eight existing before the war were rebuilt and blown in. They have been improved so that their production now reaches about two-thirds of the output of the eight in 1923. The fifth stack was blown in March 1924 by Prince Leopold, heir apparent to the throne of Belgium, accompanied by several notables of the Liege province. The sixth is about to be blown in thus bringing the production of pig iron above that of 1913, that is 38,000 tons monthly.

This company has four converters against six before the war, six open-hearth furnaces instead of four in 1914, and two electric furnaces. The production of ingots and cast steel in 1920 reached 60 per cent of the production of 1913.

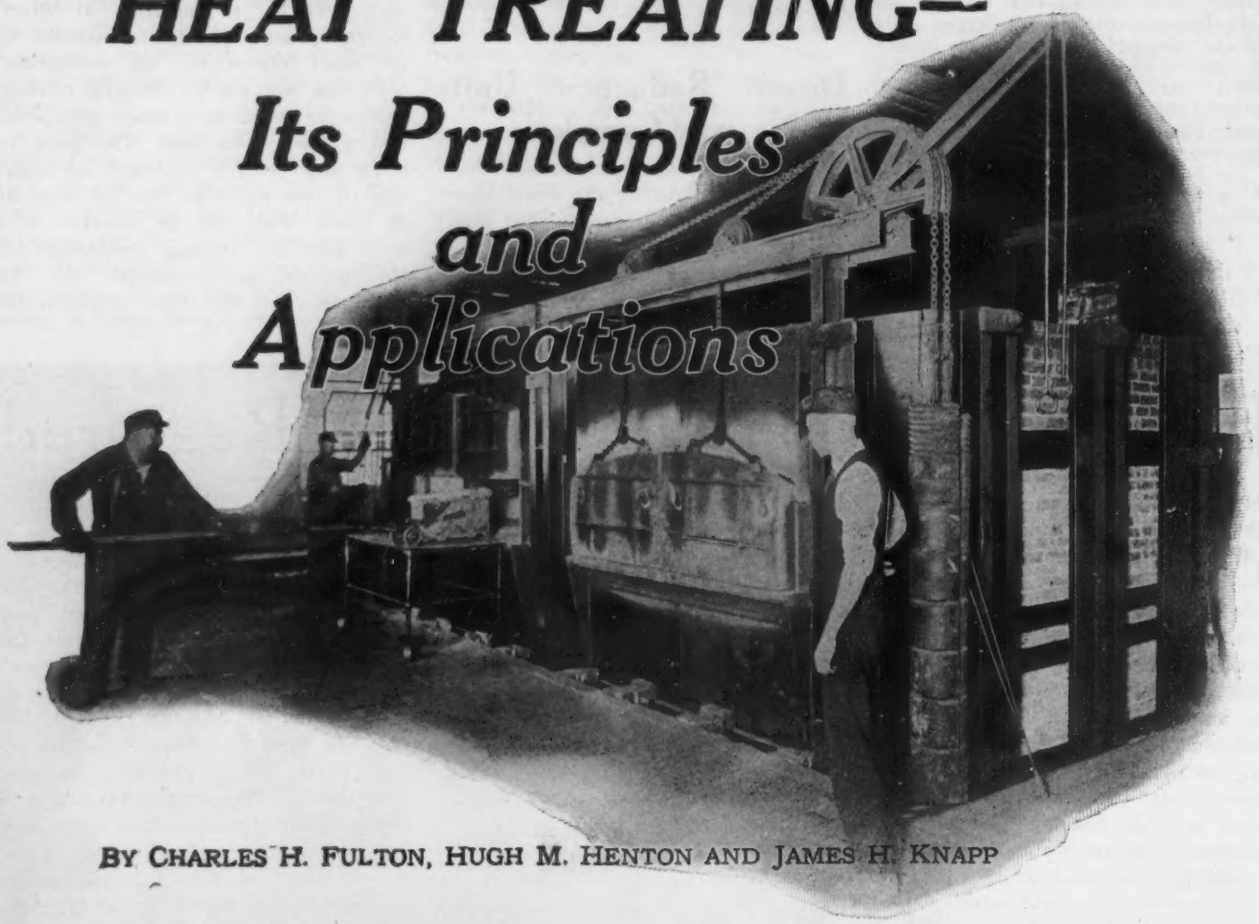
As to the Ougree rolling mills, reconstruction in 1920 had reached such a stage that the output was 70 per cent of the pre-war figures. The steel production of the Ougree plant is now about 40,000 tons monthly. This does not include the steel production of the Luxemburg and French works of the same company which bring the total monthly production up to about 100,000 tons. The other important works of the country very nearly reached their prewar output in 1920.

The revival of the steel industry in Belgium has been continued with much courage and patience, as the difficulties faced, especially financial were enormous. Through the initiative of the Belgian manufacturers and the ability of their workmen, Belgium has obtained very appreciable results, and the county now stands side by side with the largest steel producing countries, such as the United States, England, France, Germany. It competes with them on an equal footing in the markets of the world. Nearly all the steel produced in Belgium is obtained by the bessemer basic process; for special grades only, basic open-hearth and electric furnaces also are used.

The greater part of the output of the largest works, Ougree-Marihaye, John Cockerill, Angleur, Athus-Grivegnee in the Liege district and Providence, Sambre & Moselle Usines Metalludgiques in the Hainaut district, is exported in spite of the comparatively enormous home demand. This shows the importance of the Belgian industrial organization, and proves that the country is really in full activity again.

Abstract of an article in the Journal of the American-Belgian Chamber of Commerce, Brussels. The author is chairman, Soc. An. d'Ougree-Marihaye.

HEAT TREATING—
Its Principles and Applications



BY CHARLES H. FULTON, HUGH M. HENTON AND JAMES H. KNAPP

Chapter VII—Carburizing and Case Hardening—(Continued)

A QUENCHING from the boxes without loss of heat due to slow cooling will not be wise because of the coarse-grained structure of the material. It is increasingly apparent, however, that something different from the annealed pearlite and cementite is necessary in the end for a good case. A reheating and quenching from just above the A_1 point replaces the pearlite with fine-grained martensite, but leaves the cementite in its original, coarse-grained state. A further heating to* above the *Acm* point and quenching will result in solution of the coarse cementite and its preservation in the form of "hardening carbon" or martensite. Often the excess cementite is so slow in going into solution that the piece must be quenched before the cementite is completely dissolved or the already formed austenite grains will grow too large. This results in a few scattered nodules of cementite in a ground mass of martensite—not a bad combination.

Another way to get at the same result, in a perhaps better way, is to hold at the high temperature *Acm* just long enough to dissolve the cementite, quench the coarse-grained resulting austenite to martensite, then reheat to just above the A_1 point and quench again. The piece should leave the first quenching bath as soon as the red leaves it, thus avoiding the danger of cracking the coarse-grained martensite.

Thus far we have dealt with the results to be desired in the case and have not considered how the above treatment will affect the core. The latter is low or medium in carbon and is surrounded by the varying carbon area which is graduated evenly from carbon of core into the carbon of the case, if the proper choice of carburization cements and method has been made. The martensites formed by a quench at a given temperature vary in quantity and structure, depending upon the carbon content at a particular place in the section. Photomicrographs of five different steels quenched in water from 900 degrees Cent. (1652)* are shown in Fig. 64. From (a) to (e) the carbon content is increased by 20 to 30 points between samples. The steels differ only in carbon content, all the other constituents remaining the same. In (a) the temperature was not high enough to dissolve all the ferrite in five minutes, so the martensite formed is surrounded by the free ferrite at the grain boundaries. The carbon content of 0.1 per cent corresponds to that used when a soft core is wanted. The long heating and high temperature of carburizing, some hours at 1050 degrees Cent. (1922), has coarsened

Carburizing Processes and Agents

STRUCTURES resulting from increases in hardening and methods of obtaining these results at will are covered in this, the second installment of Chapter VII. Chapter I appeared Oct. 4; Chapter II was published in the issues of Oct. 18, Nov. 1 and Nov. 15; Chapter III in the issues of Nov. 29, Dec. 13 and Dec. 27; and Chapter IV in the issue of Jan. 10. Chapter V appeared in the Jan. 24, Feb. 7, Feb. 21, March 6 and March 20 issues. Chapter VI appeared April 3, April 17, May 1 and May 15. Chapter VII began May 29.

Charles H. Fulton is director of school of mines and metallurgy, University of Missouri; Hugh M. Henton is consulting metallurgical engineer and assistant professor of metallurgy and mining, State College of Washington, and James H. Knapp is industrial engineer, Los Angeles.

*Figures in parentheses represent degrees temperature in Fahrenheit.

the grains, necessitating a reheat such as prescribed for the case. Indeed, the temperature necessary (A_3 or above) may be higher than the *Acm* of the case and will be unless the case is above 1.3 per cent carbon.

As the average trend of American practice is to use a core of 0.2 to 0.4 per cent carbon, the reverse of the above may be true, especially for very high carbon cases; for example, a case of 1.5 per cent carbon will have an *Acm* of about 980 degrees Cent. (1796), while a 0.40 per cent carbon core, which might go with it, will have its A_3 at about 780 degrees Cent. (1436). The euctectoid case (0.9 per cent carbon), will have the A_1 lower than any core possible. The 0.3 per cent sample shown in (b), Fig. 64, as quenched from 900 degrees Cent. (1652), had still not enough carbon to give 100 per cent martensite on quenching, some of the structure taking the lower form, troostite. The troostite is the black constituent toward the lower left.

The three samples in (c), (d) and (e) have quenched to martensite and correspond in carbon content to a position from the outside of the core to the outside of the case, possibly. Many cases are much higher in carbon than that shown in (e), although some are lower than the 1.0 per cent steel there shown. It must not be supposed, however, that the hardness of the five different martensites shown in Fig. 64, is the same. The higher the carbon the harder the martensite corresponding to that carbon content, or as the tradesman says, "the more hardening carbon, the harder the steel." The approximate hardness figures for the steels as hardened are indicated in the table accompanying Fig. 64.

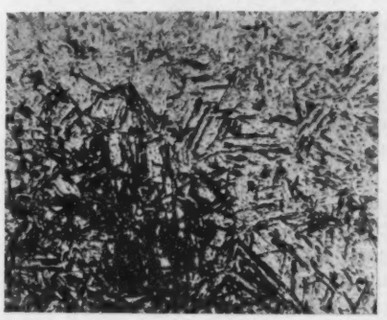
Grain Refining Important

The grain refining of the core is generally the principal object of its heat treatment rather than the hardening. If the *Acm* of the case lies 100 degrees (180) below the A_3 of the core, then a double heating and quenching will accomplish both the grain refining of the core (high heat and quench), and the grain refining and the hardening of the core (the second or low heat and quench). The second heat will serve to temper or let down the hardness of the core, making it softer without materially enlarging the refining grains. Where *Acm* is higher the treatment is more difficult and will be dealt with later in this chapter, where concrete examples can be given.

Having sensed the objective of the process and microscopic constituents to be desired, we must inquire into the means and agents adopted to give us the necessary carburized case with which to begin. Solid, liquid and gaseous carburizing agents or "cements" are used, each best for a particular class of work. By far the largest quantity of work is carburized with solid cements. This class of objects includes small parts such as balls and races for bearings, dies, gears, steering knuckle bolts, etc. The work is carburized all over the surface, or small portions may be copper-plated, protected with fireclay, or painted with various substances to locally prevent carburizing. This method for localizing the hardening is better than an attempt to differentially harden equally carburized portions.

The solid cements contain charcoal or carbon in some form, and barium carbonate, salt, potassium nitrate, cyanide, or ferrocyanide. The function of the first two are definitely known. The barium carbonate breaks up and helps to oxidize and gasify the carbon of the charcoal. The carbon monoxide gas formed penetrates the steel at temperatures between 800 and 1100 degrees Cent. (1472 and 2012), deposits carbon which is taken up by the iron, and acquires more carbon from the excess charcoal in the pot. The air in the box

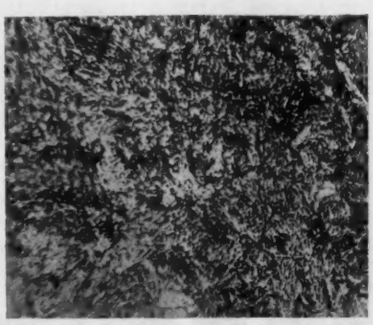
(a) 0.1 per cent carbon steel, showing ferrite and martensite



(b) 0.3 per cent carbon steel showing martensite and troostite

Fig. 64—Structure of five steels of different carbon content, all heated to 900 degrees and then quenched in water. Magnification in each case is X 200. (Styri)

No.	Classification	Place	Per Cent Carbon	Scleroscope Number	Brinell Number
(a)	Soft steel	Core	0.10	30	150
(b)	Low carbon steel	Core	0.30	60	300
(c)	Medium carbon steel	Case inside	0.50	90	475
(d)	Medium high carbon steel	Case	0.80	110	575
(e)	High carbon steel	Case	1.00	120	650



(c) 0.5 per cent carbon steel, showing martensite

(d) 0.8 per cent carbon steel, showing martensite

(e) 1.0 per cent carbon steel, showing martensite

helps at the start to form more gas than would be possible without it. The pots are sealed tight with fireclay cement luted in around the covers, and further introduction of air prevented by the use of a reducing atmosphere in the heating furnace. This also serves to somewhat avoid the scaling of the pots.

The action of the common salt is not certainly known. It is probable that it acts as a diluting gas and a catalyzer or carrier of the carburizing gas. Salt vaporizes rapidly above its melting point, and the vapor is known to be very penetrating. The other constituents such as the cyanides act in a minor way to furnish carbon for the case, and numerous additions of various doubtfully useful materials are not uncommon. Fantastic nostrums for the carburizing box bid fair to become as numerous as patent medicines. Wood charcoal 55 per cent, barium carbonate 40 per cent, salt and cyanide 5 per cent, gives a good formula, but pains must be taken in mixing the ingredients. Some method of deeply impregnating the good porous charcoal with the carbonate and salt is needed. Experience would suggest soaking the charcoal with a saturated hot solution of the other ingredients, and then drying thoroughly.

The cementing mixture should be rather durable, that is, it should not have to be renewed too often due to exhaustion of carbon or carburizing action, and should not pulverize too easily. The barium carbonate can be regenerated by exposure to carbon dioxide fumes at a convenient time. The fumes are formed when the hot carbon is exposed to the air. It is customary to mix old carburizing compound with new, and several concerns show figures to prove that the mixture works better than the new raw compound. Depth of case should be measured on test pieces by use of the microscope, and scleroscope hardness taken on quenched test pieces. By this means a close check on the efficiency of the compound can be kept and charts posted to show how many heats it will stand without replenishing, also on what work a partly spent mixture had best be used.

Speed of Carburization

Other solid cements such as leather and iron scraps, bone, coal, pitch, and the like may be used. The more of the volatile constituents present up to a certain limit, the faster will be the carburization at the start, and the higher in carbon the case will be in the outside layers. And layers there will be, irregular in carbon content, and with sharp boundaries equally undesirable.

The best case is one formed by the carbon, monoxide gas from clean charcoal. If a high carbon case is the only

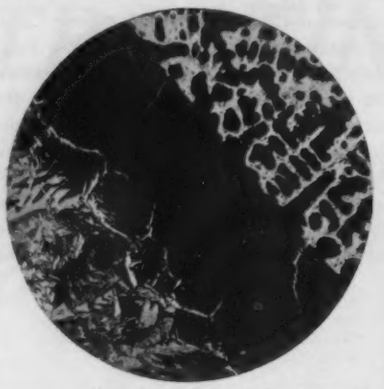


FIG. 65—STEEL OVER CARBURIZED TO A COMPOSITION LIKE CAST IRON AT EDGE. (JEFFRIES)

criterion, we might overheat and get a case such as shown in Fig. 65. Cementite is in great excess at the edge (upper right) of the sample. The black zone in the center is pearlite (of 0.9 per cent carbon) which would be ample in carbon content for ball bearings for example, but existing as it does, "enfoliated" or banded, the abrupt edge of the band is sure to fail in the hardening heat treatment.

Depth of Case

Fig. 65 shows the core at the lower left. The change from almost pure ferrite to the pearlite band is abrupt. The pearlite could be distributed further into the core by heating in charcoal, relying on the carbon monoxide for the distribution, but the upper edge of this sample is so badly over-carburized that no such cure is here possible. A good case can be put on a 0.2 per cent carbon steel by the wood charcoal, barium carbonate mixture in six hours at 950 to 1000 degrees Cent. (1742 to 1832). The following shows the depth of case obtained in four different trials with a 0.25 per cent carbon steel, with time constant six hours.

Cent. degrees	Fahr. degrees	Depth in Millimeters 1.	2.	3.	4.
700	1292	0.05	0.1	...	...
750	1382	...	...	0.1	0.2
800	1472	0.43	0.5	...	0.5
850	1562	0.73	0.75	0.75	0.9
900	1652	...	...	...	1.58
950	1762	1.8	1.9	2.0	2.1

The carbon content at the very outside of the samples was close to 1.2 per cent. There was a gradual drop in carbon content for the 950 degrees samples, from outside to inside of case, making it hard to tell just where the case vanished and the core commenced. The pots or boxes used were cast iron with tight-fitting covers and it was necessary to place the pyrometer beside the pot or touching it, instead of inside. Thus there was a large chance that the temperature inside of the box did not at all times agree with the pyrometer on the outside, because of the heat insulating effect of the box and packing or cementing material.

Completes Coke Plant

The new by-product coke plant of the Diamond Alkali Co., Fairport Harbor, O., consisting of 23 combination coke and gas ovens complete with by-product and benzol recovery equipment, was placed in operation early in May. The ovens are of the Becker type, designed and built by the Koppers Co., Pittsburgh. Approximately 500 tons of coal will be carbonized per day. The coke, ammonia and part of the gas will be used in the chemical plants of the Diamond Alkali Co. and the remainder of the gas will be sold to the companies supplying gas to Painesville, O., and Ashtabula, O.

Living Costs Lower

Cost of living in the United States on April 15, 1924, had decreased nine-tenths of 1 per cent from the level of March 15, 1924, as shown by a survey just completed by the National Industrial Conference board. The most important changes within the month from March to April were decreases of approximately 2 per cent in food prices and 3 per cent in fuel prices. Between July, 1920, when the peak of the rise in the cost of living since 1914 was reached, and April, 1924, the cost of living decreased 20.9 per cent. The increase in the cost of living since July, 1914, was 61.8 per cent. The purchasing value of the dollar based on the cost of living in April, 1924, was 61.8 cents as contrasted with $1 in July, 1914. The accompanying table shows in detail the changes in the cost of living since 1914.

Living Costs Compared

July, 1914 to	All items	Foods	Shelter	Clothing	Fuel and light	Sundries
Jan., 1923	58.1	44	67	60	87	71
Feb., 1923	57.5	42	67	62	87	71
Mar., 1923	59.2	42	70	68	86	73
Apr., 1923	59.1	43	70	67	80	73
May, 1923	60.3	43	72	74	78	73
June, 1923	60.1	44	72	69	78	73
July, 1923	61.9	47	75	70	76	73
Aug., 1923	61.6	46	75	71	76	73
Sept., 1923	63.4	49	75	75	76	73
Oct., 1923	64.1	50	75	76	78	73
Nov., 1923	65.3	51	80	74	76	74
Dec., 1923	65.0	50	80	75	76	74
Jan., 1924	64.6	49	80	76	75	74
Feb., 1924	63.9	47	80	77	75	74
Mar., 1924	63.2	44	85	76	72	74
Apr. 1924	61.8	41	85	77	68	74

By stopping bleeder losses at blast furnaces and increasing the efficiency of stoves it is estimated that about 2,350,000 gross tons of blast furnace gas will be made available.

Labor Saving Machinery Adopted

Devices Used in Various Departments of Coke Plants, Blast Furnaces, Steelworks and Rolling Mills to Augment Production and Reduce Costs Are Finding Wider Application—Numerous Installations Cited

BY G. H. CHARLS

IN MILLS in operation labor saving devices are necessary limited to the minor improvements peculiar to each mill. However, the elimination of labor from the small job is fully as important as from the larger ones. The installation of labor saving devices on the various machines and jobs which lend themselves to improvement, is one means of reducing labor costs in individual mills.

A questionnaire was sent out to many mills requesting such information as they felt free to give regarding labor saving devices installed or suggestions where they could be installed and a number of replies were received.

One company submits the following:

Blast Furnaces

Complete bin filling system including charging car and skip hoist.
Pig casting machine.
Iron notch gun.
Electric drill for opening iron notch.
Locomotive cranes with magnet for handling pig iron and scrap.
Electric centrifugal water pumps.
Use of compressed oxygen for opening up hard tap holes.
Oxyacetylene torches for cutting iron.
Improved gas burners at boilers and stoves.
Compressed air for cleaning hot blast stoves.
Water softening and purifying plants for boiler and circulating water.
Introduction of larger capacity railroad cars for ore, coke and limestone.

Coke Plant

Improved charging cars.
Improved electric pushers.
Electrically operated quench cars.
Electric car for handling the oven doors and guides for coke as pushed.
Automatic quenching tower.

Coal Mines

Improved electric haulage.
Electric mining machines.
Electric drills.
Electric coal loading machines.
Conveyors inside the mines.
Larger mine cars.
Heavier rails for mine haulage.
Up-to-date machine shops for repairs.

By changing the door extractor on the pusher machine from hand power to motor drive, one man can be eliminated on the pusher side. A platform or stage installed on the hot car locomotive will eliminate one man from the coke side. Signal lights used in connection with the coke bins at the furnace by using the conductivity of coke to close the circuit on the signal light will eliminate three men in coke handling. A cement gun for lining blast furnace and open-hearth ladles operated by compressed air and using a mixture of two parts ordinary sand to one part of fire clay, is both a labor saving and cost reducing device.

The following labor saving devices installed at open-hearth furnaces by a concern well known for its progressive attitude include:

Conveyors to handle checker brick and refuse from chambers to cars.
Bucket for loading limestone and iron ore on charging pans.
Slag guns for cleaning slag from open-hearth cinder pockets.
100-ton jack for removing slag from cinder pockets.
Cement gun for sealing up furnaces and checkers.
Method of spraying mold interiors.

Labor saving devices which would be welcomed by the officials of this particular concern include:

Unloading burnt refractories with air at the open-hearth department.
Faster open-hearth charging method.
A conveyor or other systems for handling soaking pit slag or cinder.
A practical piler for all sizes of sheet steel.
A pack lifter in the hot mill which will not fail to operate.
A mechanical device for opening a pack of sheets after rolling.
Suction apparatus for cleaning producer gas mains and pipes and checker duct.

The development of the bin system, where standard gage cars can be unloaded from a high trestle, into bins or chutes, so that the open-hearth charging box can be filled by using the lever, which system can be extended to include all items of open-hearth charge except scrap, is being used to advantage to save labor. The development abroad of shearing presses for bundling light scrap, which has been successfully adopted in modified types in this country, is a marked labor saving device.

Methodical brick handling for open-hearth rebuilding has been developed. A diagram is made of the furnace, blocking it off into spaces which are numbered; sufficient brick to go into these spaces are placed in boxes having the same numbers. These boxes are loaded by means of cranes, sometimes ir unloading the car and sometimes in the brick shed, and delivered to the open-hearth furnace in the rotation required. It is estimated that the labor cost is reduced 50 per cent by this process.

Coal handling by the cable and scoop system, whereby the scoop is operated on cable line drag, cuts the cost of coal handling materially. The introduction of roller bearings on ingot buggies, charging cars and cranes is a most important development, due to saving in power, transportation of larger loads, and labor saving. Front and back wall coolers and water-cooled ports have proved their worth in reducing the amount of labor required in upkeep of open hearths. The use of a manipulator by a concern, cogging ingots instead of blooming them, enables this concern to handle the ingots at the hammers and the presses, reducing the force some 30 men.

Various Small Improvements

One manufacturer has invented an apparatus for the pickling department which picks sheets out of the storage vat and automatically feeds them into the drier. This eliminates a disagreeable job and two men, keeps the sheets under water, and gives a better color when they come through the drier.

This same manufacturer has introduced a floor plate remover which takes the floor plate out and enables the polishing of the hot roll top and bottom with the wedge block. Another manufacturer advocates powdered coal, correctly installed and handled. He contends it is as cheap as gas—easy for heater and helper—requires no cleaning of fire box, except Saturday, and no loss of time changing turns, crews follow out—and pound of coal per ton shows a saving.

Another manufacturer presents seven methods as follows:

Coal is dropped from hopper cars through the tracks to a sunken storage pit that is hoppered under our furnace crane. Portable steel coal boxes that are filled by one man by merely pulling a slide after the box is placed in position in the pit under the hopper are provided. The box then is transferred to the furnace where it is used as a bunker from which the coal is shoveled to the stoker hopper. One man can coal eight mills in one hour for eight hours run.

An automatic sheet bar catcher for

Abstract of a paper presented at the second annual meeting of Sheet Steel Executives, White Sulphur Springs, W. Va., May 12 to 15. The author, G. H. Charls, is vice president and general manager, United Alloy Steel Corp., Canton, O.

heavy shears recently has been installed making labor easy that otherwise would be difficult to handle.

Telegraphs have been installed leading from pair furnaces to roughing mills to be used in working heavy bars. This arrangement makes pair heating an easier job. Portable roller carriers are placed between roughing and finishing mills when working heavy sheet bars, eliminating swinging by rougher and catcher. Miniature guillotine shears are attached to the housings of jobbing mill shears, to cut side scrap too heavy to be compressed, eliminating the bending necessary for hand bundling.

Sheets from the cold rolls are conveyed directly onto annealing bottoms by a flexible roller carrier making catching an easier job.

Machines have been installed to throw a blanket of hot air over our pickle tanks, thus eliminating fumes and steam and improving working conditions.

A new type sheet mill roll heater has been invented, developed and successfully installed, according to recent reports. Another manufacturer states he has eliminated the catcher on the bar shears by the development of a bar shear catcher and piler. Several manufacturers are working on an opening machine. One reports such machine has just been developed and set up, and that apparatus is working successfully. A mechanical polisher for the hot rolls, has been developed but this has not yet been perfected.

One manufacturer reports that he has carried out experiments on a process of producing the equivalent finish of a loose roll sheet, without actually loose rolling. There is a need for modified methods of bar piling, to eliminate hand labor on the continuous pair furnaces. Also the need for an efficient method of handling ashes from sheet and pair furnaces.

Two million dollars has been spent in trying to develop a continuous sheet mill, or repeater mill for heavy gages. Recent developments indicate that this much desired result is being realized at a plant in Ohio. Experiments are being made to shear fire bed sheets with a slitter to trim the edges and an automatically operated end shear. The idea of automatically disposing of side and end scrap by placing a hole in back of the shear, then building a subway and conveyor leading directly to the bundling press is submitted for study and further thought.

Various Improvements Developing

The mechanical doubler is successfully operating in the tin mills, and is fully described in the July 20, 1922, issue of IRON TRADE REVIEW. It is now being worked out for the sheet mills. The same can be said regarding a mechanical matcher, which is fully described in the Oct. 13, 1921 issue of the IRON TRADE REVIEW. The idea of a mechanical feeder and catcher for cold rolling, the use of tandem rolls, and the possibility of one feeding to carry the sheets through the scrubber and drier, one, two or three stands of cold rolls, is being followed up closely by some mills. There is the need for better coal and ash handling facilities from stationary annealing furnaces. Water cooled floors and shields save man power in the hot summer months. The mechanical catcher is a possibility. In the galvanizing department the automatic pot feeder is a necessity according to several manufacturers, some having it in the experimental stage.

A new bar piler is described as follows: Bars are fed one at a time onto sloping head of movable ram, which is power operated. Bar piler consists of movable platen, power operated, which can be lowered at will. Material to be piled is fed onto the inclined surface of the ram head. When the proper number are assembled to fill width of platen, sloping ram is withdrawn and bars are laid on the platen. The latter then is lowered a proper distance to allow the ram to come forward to receive a second layer of bars, and horizontal ram then is withdrawn depositing bars on top of first layer. This operation is repeated until pile is complete, when entire lift is removed by means of crane, and platen and sloping ram start their cycle again from original position.

Each individual manufacturer appreciates that there are innumerable possibilities for the development of labor saving devices in the manufacture of sheets. Each has set out to overcome the obstacles. Some become discouraged; others succeeding in a fair way are inclined to keep the ideas developed a secret. In most cases these become public property sooner or later and the same thing is accomplished by others in the same manner.

If the war taught any lesson it was, that greatest success could be accomplished through the application of unselfish effort in behalf of a worthy cause. If we are wise we will apply this lesson to our industry not only in the development in some of the major labor saving devices all recognized as necessary but also in the joint united advertising of our products.

Business Advancing as a Profession

BY D. W. MALOTT

WHILE this country was in a pioneering stage it needed for its development men of the stronger physical type, with the ruder physical virtues. Intellectual ability was not of such importance as powerful muscles. Strength was needed without the refinement of culture which came later.

So it has been in business. Comparatively few people realize that American business was largely in a pioneer stage until very recently. Formerly men of the pioneer type were needed. Today with the growth of business units, both in potency and in size, executives of trained intellectual powers are needed, so that there is an increasing demand for the professional type of men in business.

It seems possible that American business is following the cycle of development characteristic of other occupations ultimately recognized as professions. The scrivener of the Middle ages became the honored solicitor of English legal practice. The surgeon-barber of as late as the eighteenth century developed into the scientifically trained and universally respected surgeon of the present day.

When the growth of population, and the growing financial resources of the people, created a demand for more doctors and lawyers of a higher quality than could be produced under the apprenticeship system, medical and law schools came into existence.

So it has been with business. During the pioneer days and even during the period of transition which followed the emergence of business from the pioneering stage, the apprenticeship system prevailed in training business men. With the growth in size of the units of business, and increasing pressure upon their time executives could not take time from their duties to select and train young men in sufficient number and of sufficient quality. Hence business training is now a recognized part of the country's educational system, and is here to stay.

The problem of the present is to make such business training effective

The author is assistant dean, Harvard business school.

in transmitting the best thought and experience from seasoned business executives to those just entering the profession. It frankly claims that business should be a profession and should be so respected. There is today so general a condemnation of business that people forget that this really must be the result of a rise in the standards of business generally. Without such a rise, where could there be a basis for comparison?

In general, the past has produced successful business enterprises and honest business men. The conduct of business has necessarily been along ethical lines. But the standards of ethics are constantly becoming higher, and higher ethics exert continually increasing pressure to elevate business activity. It was once looked upon as ethical for the railroads to give rebates, but today higher ethics have resulted in the prohibition of such practices. Tomorrow business ethics may still further influence the standards of business conduct. Thus self-generated improvement in business standards is perpetuated.

It is obviously true that all businesses are not conducted on a sound or on an ethical basis, and it is one of the functions of business training to equip men to recognize the true standards and ethics of the better type of business and to encourage the development of sound business practices. Already the business schools of the country have sent hundreds of graduates into the business world or into business teaching, to spread the inspiration received in their studies.

Like the business school itself, each one of these men, whether in business or teaching others for business, may be regarded as a center to spread the doctrine of relying upon facts and facts only to form judgments.

The country needs straight thinking. It needs respect for business. It needs recognition that business is a part of our national well-being and that business men who are controlled by professional standards and professional ethics are the most vital factors for the country's safety and growth.

To be effective business training must teach the principles of business and through straight thinking, the application of these principles to the facts of business experience. The "case system" now in use at more than 100 colleges in the country seems peculiarly adapted to obtain these results. Actual business problems are studied, facts must be reviewed, factors weighed, and decisions made. In other words, it is an analytical training.

Subjected to this sort of training a student should become of use in the business world much sooner than if he had not had the advantage of this analysis of business principles. However, he must rely on practical experience in a chosen field of business, to teach him technique. The detail of the hundreds of specific industries cannot be as effective or even a desirable part of business training in the schools. The time is far better spent in the study of fundamental principles.

Business training also should train men to face facts and to form independent judgments based upon the facts, and not upon reflexes and impressions. Furthermore, these facts should be approached from the various viewpoints of all of those concerned in a given transaction. The classroom discussion is particularly well adapted for this sort of thing, and there is the added advantage that problems may be discussed before opinions become crystallized in the minds of the students.

The result of this sort of training is that men are trained in self-reliance and are given confidence in their ability to use latent powers when emergencies arise. Any problem resolves itself into a process of analysis of its factors in a logical way, and so far as humanly possibly the "guess work" is eliminated.

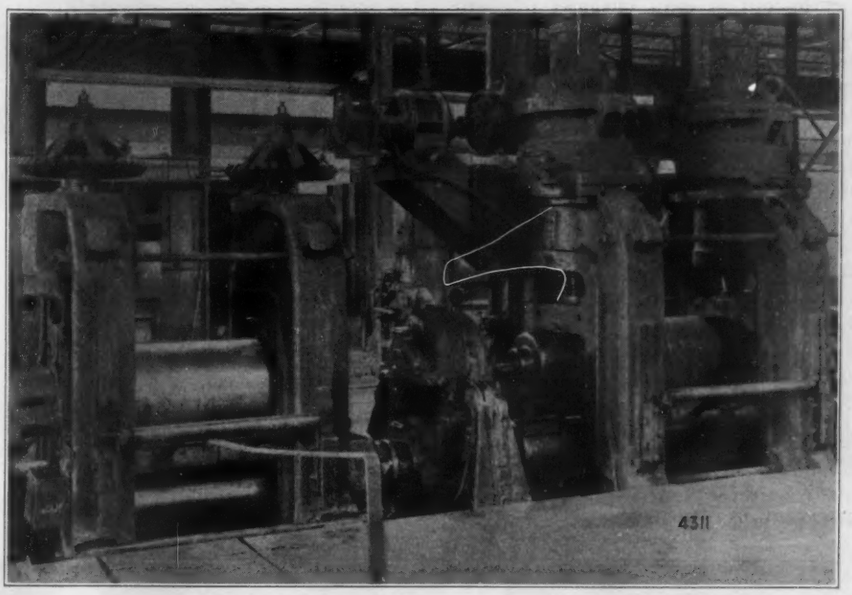
Roll Drive Conserves Mill Space

To meet the demand for a method of driving the top rolls on balanced roughing stands in sheet mills, that would not be as cumbersome and expensive as the usual pinion housing with the necessary spindles and spindle carriers, the drive shown in the accompanying illustration has been developed by the United Engineering & Foundry Co., Pittsburgh.

It consists of a gear drive with a 1:1 ratio; the bottom gear being keyed to the bottom spindle and the top gear connected to the top shaft by means of an adjustable friction. Both gears are enclosed by a cast gear case which is carried through springs by a spindle carrier frame which fits on the shoe plate of the mill. The gears, oil line totally enclosed, run in grease, insuring smooth operation and minimum wear. The adjustment of the friction for the top gear is just outside the case at the top where it is readily accessible.

The drive including the bottom spindle being a self-contained unit, may be removed without removing any bolts exactly as an ordinary spindle, i.e., there are no connections to remove except the coupling boxes. In general, the drive operates similarly to the usual pinion stand and, at the same time, does it in a simpler way with a material saving in the space required. For a single roughing stand it replaces one pinion stand, two bottom spindles, two bottom spindle carriers, one top spindle, one top spindle carrier, and three coupling boxes.

When using two finishing stands with a single rougher, the drive permits a single swing from the rougher to the finisher. As the minimum length of the two spindles and the pinions where the ordinary pinion housing is used, is about 16 feet and as the length of the bottom spindle for the drive may be as short as 6 feet, it means there can be a clear saving of about 10 feet wide by the width of the mill buildings, ground, etc. One of the drives has been in operation for nearly a year at the Weirton Steel Co.'s sheet mill department, Weirton, W. Va.



FRICTIONAL DRIVE FOR THE TOP ROLL OF A BALANCED ROUGHING MILL

Increases Steelmaking Capacity

Extension Program Recently Completed at Open-Hearth Department of Chicago Steelmaker Augments Output 18 Per Cent—Charging Doors and Reversing Valves Electrically Operated—Description of New Units

BY E. C. BOEHRINGER

OPEN-HEARTH steel capacity of the Inland Steel Co. at its Indiana Harbor, Ind., works, has been increased to the extent of four 100-ton furnaces which have just been completed. One of these new furnaces is now producing steel, but the bottoms of the other three will not be put in until business warrants. Complementary to these furnaces, two new mills are being installed—a 14-inch mill which is to be in operation in 10 days and a 24-inch mill which will not be completed until fall. The new furnaces, with the mills, are additions to that portion of the Inland Steel Co. properties north of the New York Central, Baltimore & Ohio and Elgin, Joliet & Eastern railroads at Indiana Harbor. Open-hearth works No. 2 now comprises 14 furnaces, including the four new units and with the 12 furnaces at the No. 1 works south of the tracks the Inland Steel Co.'s complement of open-hearth furnaces now totals 26.

This increase of approximately 18 per cent in the open-hearth steel capacity of the Inland Steel Co. has been effected with a minimum of financial outlay. The No. 2 works building has been extended 320 feet toward Lake Michigan to house the new furnaces. One new crane has been installed on the tapping side and one in the scrap yard. Five new ladles, four new slag pots and a number of new charging cars and mold cars have been put into service, and the mold yard and the stripper building extended. But the charging equipment, the 600-ton hot metal mixer, fuel storage capacity and waste heat boilers that have been serving the 10 old 85-ton furnaces are expected to prove adequate also to serve the four new furnaces. These new furnaces constitute an addition in the full sense of the word, rather than a complete new installation. The new furnace already in operation is the one nearest the old battery, making operation easy.

The author is editorial representative at Chicago of IRON TRADE REVIEW.

The four new furnaces are identical, measuring 80 feet from center to center. Their length outside the brick work is 67 feet 3 inches, the width 19 feet and the overall height 23 feet 9 inches. The hearths are 43 feet long x 16 feet wide and are 4 feet 11 inches from fore plate to skew back. The checker chambers are 26 feet in length, the gas chambers 8 feet 5 inches wide and the air chambers 13 feet 10 inches wide; all are inside dimensions. Front and rear, the furnaces are equipped with slag zone coolers manufactured by the Open Hearth Steel Furnace Co., Pittsburgh, which permits over-charging without damage to the banks. The buckstays and doors are water cooled. The hearths up to the slag line are lined with magnesite brick, which was furnished by the Harbison-Walker Refractories Co., Pittsburgh. The walls and roofs are of silica brick and the bottoms are of burned Austrian magnesite and slag.

Each furnace has 5 doors, which are

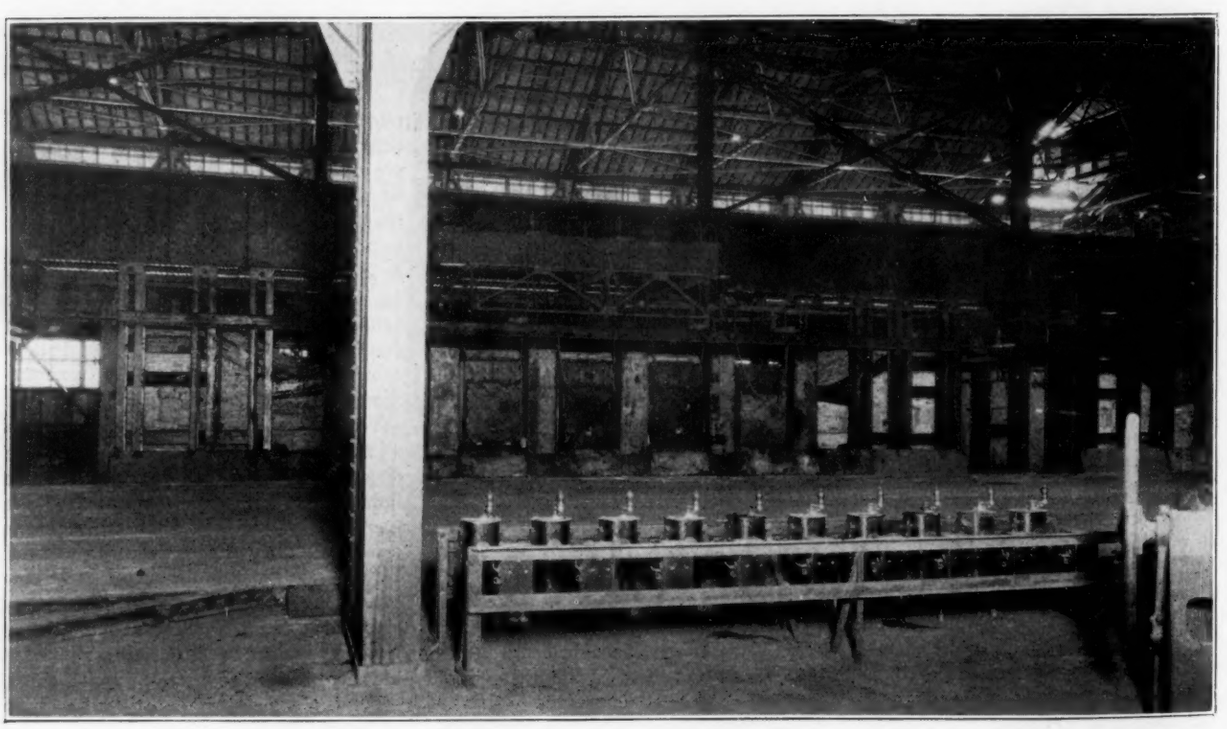


FIG. 1—FOUR 100-TON OPEN-HEARTH FURNACES SIMILAR TO THE ONE SHOWN ABOVE RECENTLY WERE COMPLETED BY THE INLAND STEEL CO., INCREASING ITS COMPLEMENT OF STEELWORKS FURNACES TO 26

operated electrically from controls located at the reversing stand. Freezing in the low temperatures induced by the proximitey of Lake Michigan, the frequent packing of valves and the danger of leakage all are obviated by the elimination of hydraulic control. Each door is operated by a 7½ horsepower motor installed on a platform on the tapping side. The motor drives a gear reduction which is connected with a crank arm, and a cable leads from the crank arm to the door. The doors, with the reversing valves and the frames, were built by the Blaw-Knox Co., Pittsburgh, and the motors, along with the other electrical apparatus, by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. The stack dampers are hand operated by a worm and gear. The dampers operate easily, having a gear ratio of 32 to 1, giving the first helper better control of his furnace. The stacks are 165 feet high, with a lining of 13½ inches and a diameter, inside the lining of 6 feet. The reversing valves are motor operated. Although oil is now used for fuel, separate piping has been provided for tar, and these fuel lines have been wrapped with the steam line. The fuel storage capacity for the 10 old furnaces will prove ample, it is believed; this comprises one 500,000 gallon, three 200,000 gallon and two 50,000 gallon oil tanks and two 300,000 gallon and one 50,000 gallon tar tanks. Coke oven gas is used for drying the ladles and runners. The charging floor is of paving brick on steel plates. Although no waste heat boilers are deemed necessary at this time, provision has been made for their easy installation. For removing the spouts each furnace has a 6-ton jib crane on its tapping platform. One 175-ton ladle crane by the Alliance Machine Co., Alliance, O., has been installed to supplement two 150-ton cranes which already were in service. The three Morgan charging machines which have been serving the old furnaces will suffice also for the new ones. The Treadwell Engineering Co., Easton, Pa., provided the five new 120-ton ladles and the four 330 cubic foot slag pots. The 25 new charging cars and the 45 new mold cars, built by the Pittsburgh Steel Foundry, Monessen, Pa., have roller bearings. New equipment also includes two slag trucks. The No. 2 furnace building, which has been extended 320 feet, has a width of 184 feet 6 inches. The addition to the stripper building is 54 feet, while the mold yard has been lengthened 156 feet. A 15-ton Alliance magnet crane has been added to the equipment of the scrap yard, already comprising two Morgan 10-ton cranes and one Morgan bucket crane. For safety sake, stairways are used to the exclusion of ladders in the extension to the furnace building. Repairs are facilitated by a 10-ton trolley around charging floor and pit side.

LADLE CRANE IN THE POURING AISLE BEING TESTED UNDER A LOAD OF 226 TONS PRIOR TO BEING PLACED IN SERVICE

Alex Laughlin & Co., Pittsburgh, was the engineer in charge. The McClintic-Marshall Co., Pittsburgh, erected the steel. The first heat was poured April 26.

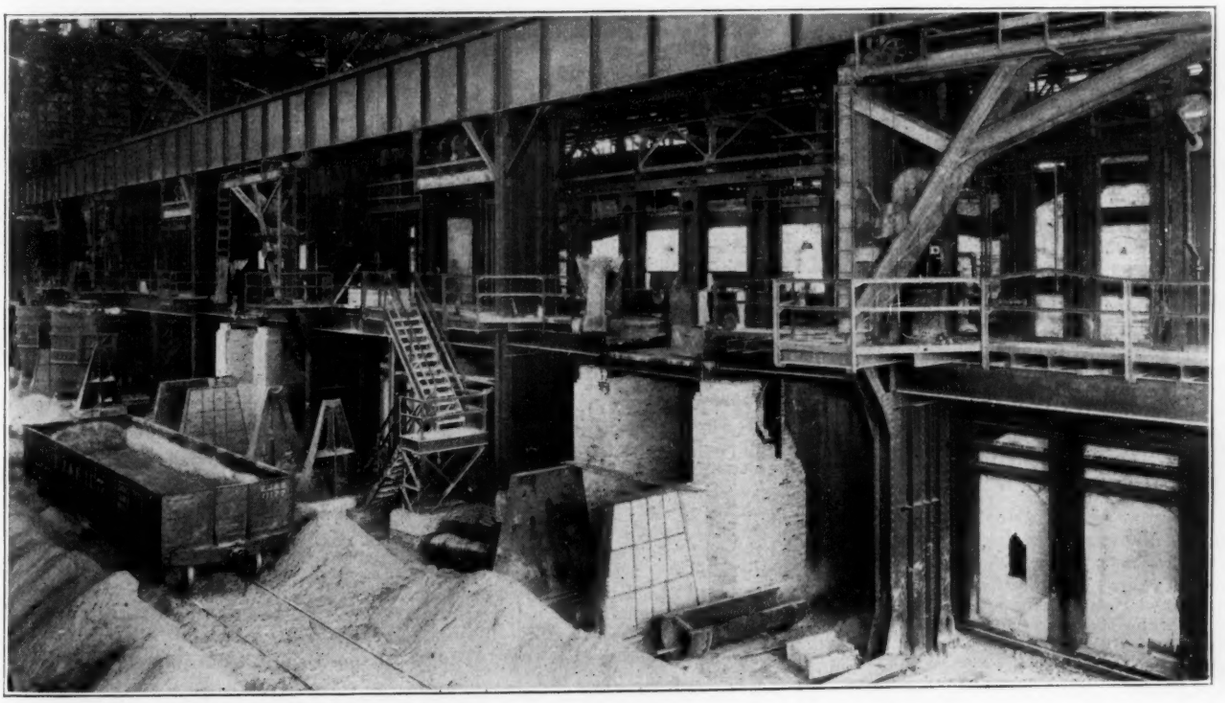


FIG. 2—TAPPING SIDE OF THE NEW OPEN HEARTHS OF THE INLAND STEEL CO. EACH UNIT IS SERVED BY A 6-TON JIB CRANE FOR HANDLING THE TAPPING SPOUT

Maintaining Down Pour Ladles

Principal Causes of Trouble in the Operation of Steel Ladles Are Outlined—Suggested Remedial Practice Should Help To Remove Prejudice Against Pouring Devices of This Type

BY S. R. ROBINSON

STEEL may be melted under ideal conditions and may meet any specification at the moment it leaves the spout, yet if the ladle does not function properly the same heat of steel may be a total loss or at best may be responsible for a floor of more or less unsatisfactory castings. A list of the major sources of bottom pour ladle trouble includes the following:

1—Attempting to use a ladle that has not been thoroughly dried and heated.

2—Improper stopper. (a) Nozzle and stopper do not coincide on contact circle. Almost without exception graphite stoppers are perfectly round, but in many instances the fire clay nozzle will be found to be slightly oval and as a result the stopper does not fit closely. A favorite but mistaken method for correcting this feature is to revolve the stopper in the nozzle opening. If a black circle remains on the nozzle it is assumed that the stopper is a perfect fit. It readily is apparent that only slight pressure is required to wear the comparatively soft graphite stopper to a degree that will permit it to produce a black circle on the nozzle. This evidence does not necessarily mean that the nozzle is round. A better way to fit the stopper into the nozzle is to rub the stopper down to a bearing. This should be done before the stopper is placed on the rod and before the nozzle is placed in the ladle. A little sharp sand sprinkled around the stopper will facilitate the rubbing action by which the stopper is ground to a fit. Occassionally an opinion is advanced to the effect that the skin of the stopper should not be broken, but according to the writer's experience no outward effect has been noted as a result of fitting the stopper in the foregoing manner. (b) Sometimes the stopper is given too much spring. Instead of being set plumb so that it drops fairly into the nozzle, it is set more or less to one side and strikes one side of the opening before it springs into its seat. A stopper should be set with a slight spring, but this feature often is over done. (c) Nozzle is not set plumb and level in its place in the bottom of the ladle.

3—No provision is made for expansion of the sleeve or stopper rod. This contingency can be taken care of either by backing the nut on top of the rod or by inserting a coiled spring between the nut and the top sleeve section.

4—Cracked sleeves may be caused by not providing sufficient space between the stopper rod and the sleeve or by packing the space too tightly with sand. When the rod becomes expanded by heat it cracks the sleeve.

5—Nozzle bricks sometimes are not sufficiently refractory to withstand the heat of the molten steel. In extreme instances the nozzle melts, runs into the opening and shuts off the stream of metal.

6—In a foundry where bottom pour ladles are employed every person is familiar with the saying "the second mold is the hardest." This refers to the ever present danger of shutting off too tightly on the first mold or a delay in opening up over the second mold. When this happens the stopper sticks in the nozzle and usually entails a considerable amount of trouble before it can be lifted over the second mold. The best recommended practice is to open over a large mold so that a sufficient quantity of metal will flow through the nozzle to thoroughly wash all the cold metal from the bottom of the ladle and also thoroughly heat the nozzle. A comparatively long pour also gives the ladle man an opportunity of trying the stopper by shutting the stream off once or twice temporarily before the mold is filled. In this manner he probably will secure a clean shut off. Where only a medium size mold is available for a start it is advisable to have the second mold quite close to the first and directly in line so that the craneman can spot the ladle over the second mold without loss of time. The craneman should be instructed specifically before the heat is tapped, the order in which the molds are to be poured. Where all the molds are small it has been found advisable to make the first opening over a short ingot mold in close proximity to the first mold. Several hundred pounds may be poured into the ingot mold and the stopper may be raised and lowered several times until the ladleman is satisfied that he has a satisfactory shut off.

Avoiding Stopper Troubles

7—Sometimes a stopper sticking in the nozzle will cause the loss of an entire heat. This condition may be caused by shutting off too hard over the first mold especially if any delay is experienced in opening up over the second mold. If the ladle is provided with an extra long handle, the ladleman may not be aware of the tremendous force he is exerting on the stopper rod. As a rule a short lever is to be preferred to a long one. If the nozzle and stopper are adjusted and set up properly and if the metal is at a proper pouring temperature a gentle pressure is sufficient to insure a clean shut off. Usually a pricker made from a hammer handle and held with a pair of tongs is all that is required to open a frozen nozzle. The upper end of the handle is inserted in the nozzle and then the ladle is lowered over the edge of a flask or an ingot mold. After the metal starts to flow a reasonable amount is allowed to run through before the stream is shut off. Unless further complications are present or develop later, the remainder of the heat usually may be poured satisfactorily.

8—Where the nozzle freezes on account of cold metal it may be opened some times by a wood pricker as referred to in the preceding paragraph. However an application of oxygen will prove a more expeditious method. One end of a suitable piece of hose is attached to the oxygen bottle. The other end is connected to a 6 or 8-foot length of ¼-inch pipe. The outer end of the pipe is bent approximately at a 90-degree angle and inserted in the nozzle. The oxygen is turned on and almost invariably results in burning a clean hole through the frozen metal. In this connection also it is interesting to note that the oxygen flame may be applied toward the removal of the skull immediately after the ladle is dumped. The flame is employed to cut intersecting channels through the skull at right angles thus dividing the skull into four approximately equal parts which may be removed with ease when the ladle has cooled.

Prejudice exists in many steel foundries against the use of bottom pour ladles and even where they are employed, in many instances, their operation is not regarded with confidence. This condition should not exist. The writer frequently has poured six successive heats of converter steel through one nozzle in the same ladle. A new stopper was set before each blow, but the only attention bestowed on the nozzle was to ream it out each time with a flat reamer attached to a long rod.

Local conditions sometimes are responsible for unsatisfactory pouring practice. For example in some shops the ladle man is not under the direction of the melter. In others the ladle man makes up the ladle, but the floor foreman pours the heat. Again, the melter may not be held responsible for the metal after it has been tapped into the ladle, and therefore it is only natural that he should not worry to any noticeable extent if the ladle is not as hot as it should be, if the nozzle leaks or if the ladle is handled so slowly that the metal becomes cold. Probably the majority of melters do not maintain this indifferent attitude, but it is only natural that he should not take as much interest in the proceedings as if he was held responsible for the condition of the metal until it was poured into the molds.

Obviously it is desirable that the ladleman should come under the jurisdiction of the melter. Also that the melter should be held responsible for the proper

care and upkeep of the ladles, stoppers, etc., and for the actual pouring of the metal into the molds. The usual argument advanced in opposition to this program is that the melter considers his presence necessary on the platform during the process of making the bottom after each heat is tapped. However, this argument really has no weight where an efficient first helper is employed.

After trying practically every available lining material the writer has obtained the best results from a brick lining coated with slurry of common red brickyard clay. A split brick is placed next the shell followed by a 9-inch brick laid the 4½-inch way if the capacity of the ladle will permit that arrangement. If not the brick may be laid the 2½-inch way. A hard burned smooth fire brick is the most suitable for the purpose. A heavy coating of thick red mud laid on the brick for about one third of the distance between the top and the bottom will facilitate the removal of any skull that may form.

Immigration Measure Is Criticized

Defects in the immigration bill passed by congress are charged in a special report on its scientific aspects by the National Industrial Conference board. The board has had a staff of research experts analyzing immigration legislation and its scientific phases.

The report, which says that the nation's immigration problem is as far away from a solution as ever, pays attention to the work of Dr. H. H. Laughlin, of the eugenics record office of the Carnegie institution, who was expert advisor to the department of labor and the house committee which reported the preliminary immigration bill. Dr. Laughlin's conclusions summarized in his so-called "analysis of the metal and the dross in America's modern melting pot," are subjected to severe criticism by the conference board as unscientific and tending to distort the sound basis on which the eventual solution of the nation's immigration problem must be reached.

The intimation is made that the methods adopted in trying to solve the immigration problem have turned the science of biology into a game of "heads we win, tails you lose" for the immigrant.

Runaway Crane Is Salvaged Unharmed

RECENTLY an unusually heavy gale combined with high tides hit Port of Grays Harbor, Washington, with extreme severity.

Workmen on the docks before leaving for the night, took extra precautions to make everything fast. On one of the docks two big hammerhead cranes built by the Colby Steel & Engineering Co., Seattle, had been installed for unloading and storing lumber. The operator of Crane No. 2 which was at the outer end in the more exposed position, fastened the rail clamps securely before leaving. For some reason Crane No. 1 was not securely clamped to the rails. However, the operator swung the boom to a 45-degree angle from the track and dropped the load block to the face of the dock, and the hook-tender wrapped the slings around a 12 x 14-inch main dock pile cap, tightened up the line with the hoist and set the brake.

During the night a gale estimated at 90 to 100 miles velocity truck the harbor. Crane No. 2, with rail clamps securely in place, weathered the storm without moving a foot. But the wind coming quarteringly from the ocean caught Crane No. 1 and swung it with sufficient force to shear the 12 x 14-inch pile cap horizontally, without loosening the bolts which held it to the piles. The the boom swung parallel with the track and 225,000 pounds of iron and steel started for the end of the dock, 60 feet away.

At the end of the dock the moving mass struck the heavy timber bumpers,

FIG. 1—TWO CRANES ON DOCK AT PORT OF GRAYS HARBOR, ONE OF WHICH CAPSIZED IN A GALE

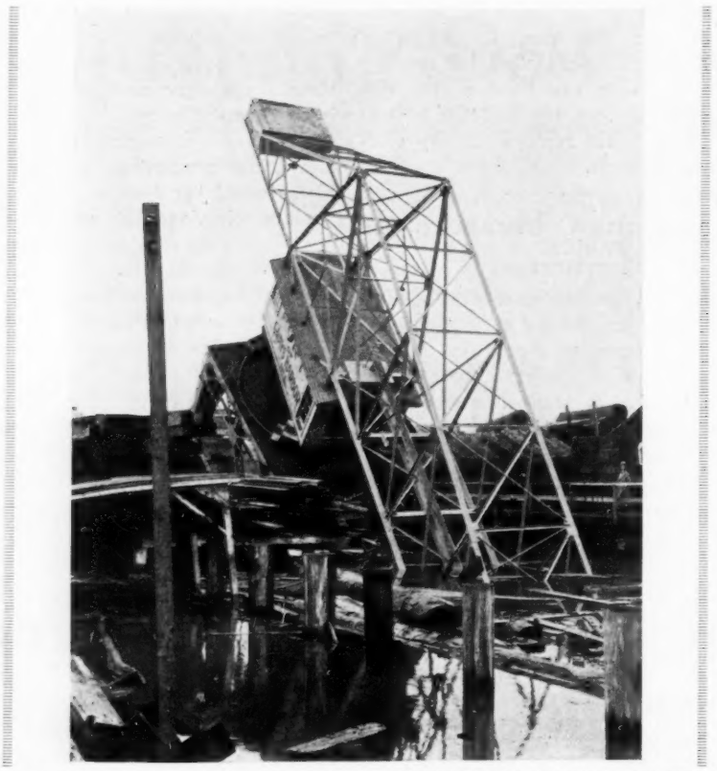


FIG. 2—CRANE NO. 1 AT END OF RUNWAY WITH BOOM RESTING ON THE MUD FLOOR OF HARBOR

which it carried away, and the crane tipped off the open end, burying its 95 foot boom 40 feet in water and mud and tilting the whole structure to an angle of 45 degrees from the horizontal.

Examination showed that the great weight of the superstructure was supported and held in place by the rotating center and the rear uplift anchors. What at first seemed to be a tremendous ruin, resolved itself into a salvage problem. To get the crane back on the track, the trucks, still on the tracks, were braced so they would not move and then, by means of ropes, two bridles each with 24 part lines the whole was brought back to a horizontal position, the boom tip being first burned off at the water line.

When the crane was brought back to a normal position the only repair or replacement found necessary was restoring the end of the boom which had been burned off purposely before attempting to right the crane. The rivets all held, the structural steel was all in line and the hoist and other mechanical parts were in no way damaged.

Reviews of New Books

Revises Mechanical Handbook

Mechanical Engineers' Handbook, second edition, Lionel S. Marks, editor in chief, leather; 1986 pages, 4½ x 7 inches; published by the McGraw-Hill Book Co., New York, and supplied by IRON TRADE REVIEW, Cleveland, for $6 in U. S. A. and £1 10s in Europe.

This handbook represents the work of 50 specialists and is intended to supply the practical engineer and student with a reference book which is authoritative in character. It covers the wide field of mechanical engineering in a comprehensive manner. In the second edition the revisions generally have been made by the original contributors. The subjects which have been revised extensively are hydraulics, heat, iron and steel, nonferrous metals and alloys, steam boilers, internal combustion engines, etc.

The section devoted to materials of engineering is of special interest to foundrymen, as it covers the following subjects: Classification of castings and the specifications covering gray iron, malleable and steel castings. The nonferrous metals and alloys and the strength of such materials at high temperatures, foundry materials, layouts and costs. Other sections of the volume treat of machine shop practice, mechanics of rigid bodies, stresses in frame structures, power generation, building construction, etc.

The second edition endeavors to combine what is considered at the present time the best engineering theories and practices and those branches which are of most interest to mechanical engineers. A convenient feature of this volume is the use of thumb tabs which assist the reader in locating the detached contents of any section.

* * *

British Empire Resources

Nonferrous Metals and Minerals of the British Empire, by N. M. Penzer; 264 pages, 7½ x 10 inches; published by Ernest Benn Limited, Bouverie street, London, and furnished by IRON TRADE REVIEW, Cleveland and London, for $6 in U. S. A., and £1 1s in Europe.

This is one of the 10 volumes on British Empire resources which is now being published under the auspices of the Federation of British Industries. In company with its companion volumes it is provided with a foreword by the Prince of Wales, and a general introduction by Sir Eric Geddes, president of the Federation of British Industries. A special introduction also has been written by Sir Richard Redmayne, chairman of the Imperial Mineral Resources bureau.

In this book complete data and statistics regarding the nonferrous metal resources of the British Empire are presented, and it is believed this is the first time that this information has been brought together in convenient form in a modern publication. Thirty-three nonferrous metals and minerals are dealt with, including aluminum, antimony, chronium, cobalt, copper, fluorspar, gold, graphite, lead, magnesite, manganese molybdenum, monazite, nickel, platinum, sulphur, tin, vanadium, zinc, etc. The book is divided into three parts, part I dealing with British Empire metal and mineral resources statistically; part II is geographical and descriptive; while in part III will be found a very complete bibliography of the existing literature dealing with nonferrous metals and minerals. This book, like the others in this series, is a valuable work of reference.

* * *

Solving Labor Problems

Manpower in Industry, by Edward S. Cowdrick; cloth; 388 pages, 5¼ x 8 inches; published by Henry Holt & Co., New York, and supplied by IRON TRADE REVIEW.

Few books on the subject of human relations in industry are as comprehensive in their scope as this one. The author for some time was associated

(*Concluded on Page* 1572)

Fig. 1—The power equipment is in the 70-foot car at the right and the distilling apparatus is on the 65-foot car at the left

Mounts Oil Refining Plant On Wheels

A PORTABLE crude oil refinery involving several novel features of design and construction recently was placed in operation at Luling, Texas, by the Portable Refining Co., Dallas. The principal equipment, consisting of a power plant and distilling apparatus, is mounted on two specially constructed steel railroad cars, enabling the unit to move from one oil field to another on short notice. The refinery was built by the Graver Corp. at its plant at East Chicago, Ind.

The two main units of the refinery, the power plant and the distilling equipment, are carried on two immense steel railway cars. The power car is 70 feet long, 13 feet 8½ inches high and 9 feet 1¼ inches wide. It carries a 70-horsepower oil engine, a generator, a 70-inch suction fan, an air compressor to supply air for starting the engine, a 2-horsepower gas engine to operate the compressor, an air tank, a radiator for cooling water, a low pressure blower for atomizing fuel oil for firing the still, an electric switchboard and other equipment.

The still car is 65 feet long and corresponds closing with the power car in its other dimensions. As shown in Fig. 2, it carries the still with Dutch oven, a heat exchanger and a condenser. The rectifying tower which is mounted on the still is detachable. The smoke stack also is movable, being placed when the refinery is in operation on concrete foundation at the side of the still car.

Both of the cars are constructed of heavy steel and conform to standard railway specifications. The steel sides of the power car are divided into sections, hinged at the top, so that when the car is stationary they may be swung outward, forming a protective awning extending out from the roof of the car. Both cars are equipped with regulation brake beams, air hose connections and 24-inch walkways on top. The capacity or traveling load of power car is 80,000 pounds and the still car has a capacity or traveling load of 100,000 pounds. When anchored and braced at the refinery point for operation, the

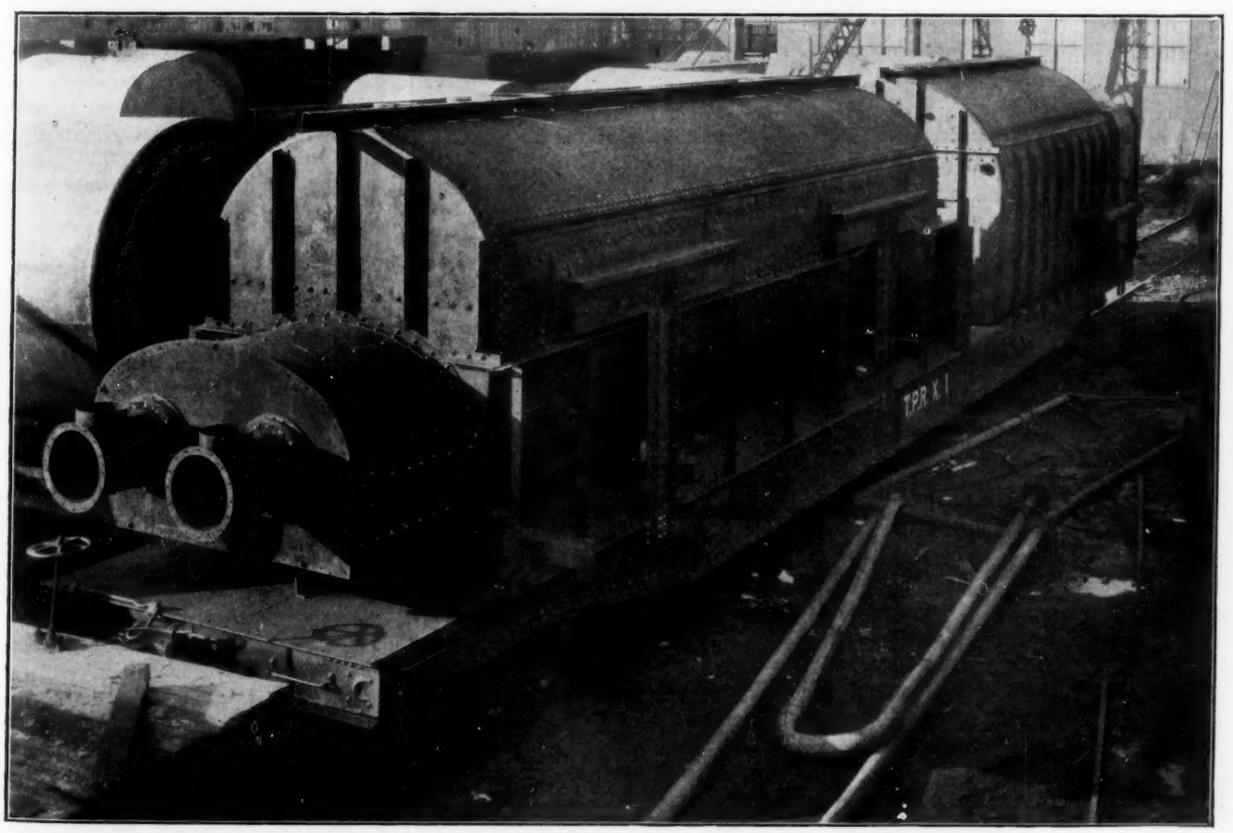


FIG. 2—PORTABLE OIL DISTILLING EQUIPMENT. BRICKWORK AND NEEDED ACCESSORIES ARE ERECTED AT POINT OF USE

still car has a working load capacity of 350,000 pounds. The cars do not rest on their wheels while the plant is in operation, but are jacked up and lowered on concrete foundation beams, placed crosswise and tied with steel rods to the tracks.

The smokestack, rectifying tower, pipe connections and other detachable equipment travel in ordinary cars when the refinery is moved. On the first journey of the plant this additional equipment weighed 47,000 pounds. The fire brick walls on the outside of the still are not placed until the plant is located.

One of the most unusual features of the refinery is the process for condensing vapors. Air instead of water

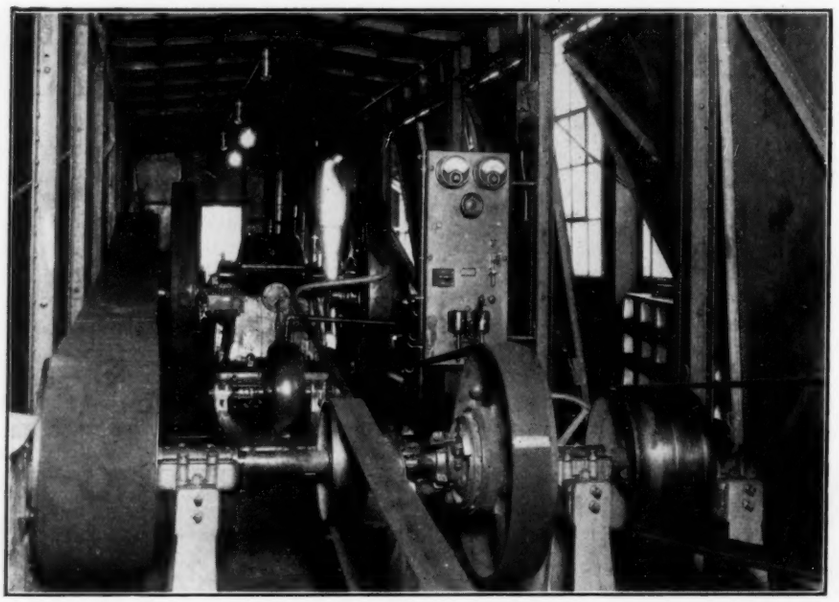


FIG. 3—INTERIOR OF POWER CAR SHOWING 70-HORSEPOWER OIL ENGINE, GENERATOR, ETC.

is used to cool the condenser, it being drawn through the space between the coils by a large suction fan. Air is also used to atomize the fuel oil for the burners and for combustion.

The plant is electrically operated throughout, the use of steam being entirely eliminated. The oil engine, which was built by the Bessemer Gas Engine Co., Grove City, Pa., drives the generator, furnishing electrical current for the pumps and lighting system.

The refinery has a capacity ranging from 1000 to 3500 barrels of crude oil in 24 hours, depending upon the percentage of distilled product. When distilling off 60 per cent of the crude, it can handle 1000 barrels in 24 hours in six-hour runs of 250 barrels each. The refining equipment, which is revolutionary in certain details, was designed by the Koppers Co., Pittsburgh. The idea of portability was conceived by T. W. Sowell, Sowell Bros., Dallas, and president of the Portable Refinery Co.

Book Reviews

(*Concluded from Page* 1570)

in an executive capacity with the Colorado Fuel & Iron Co., one of the first of the large establishments in the iron and steel industry to inaugurate an employe representation system. He has long been a student of labor problems, is a member of the Society of Industrial Engineers, and author of "Industrial History of the United States," and numerous articles on various phases of labor relations. "Manpower in Industry" is thorough, and reflects the practical experience of the author as well as his insight to human nature and the complexities making up what is called "the labor problem." The reader will not be disappointed in seeking some expression of thought on practically any angle of this problem, and though the reference may be brief it is illuminating. The book is singularly free of bias and propaganda; the author's viewpoint is admirably expressed in an introduction, on the human factor in industry, in its broadest sense. This is followed by two chapters giving a historical background. The scope of the book is further indicated by the titles of such chapters as: Organized Labor, Forms and Tendencies; Labor Supply and Immigration; the employment Function; Job Analysis; After the Worker Has Been Hired; Pyschological Tests and Character Analysis; Foundations of Industrial Justice; Mediation and Arbitration; Principle of Employe Representation; Organization of the Works Council; the Works Council in Action; the Problem for Salaried Employes; the Foreman as a Factor in Labor Management; Training the Foreman; Training the Workman; Other Types of Industrial Education; Guarding the Health of the Workers; Some Specialized Functions of Industrial Medicine; Accident Prevention and Workmen's Compensation; Service Activities in the Plant; Recreation; Housing; Business in Relation to the Public; Employes' Magazines; Principles and Theories of Wages; Profit Sharing and Stock Participation; Insurance and Benefit Associations; Organizing the Industrial Relations Department; Qualifications of the Labor Manager. The chapters are subdivided with appropriate guide lines and at the conclusion of each chapter is a reading reference. Five charts are presented showing the organization of an industrial relations department, and various forms of contacts and appeals as expressed in employe representation.

* * *

British Empire Iron and Steel

Ferrous Metals of the British Empire, by M. S. Birkett, statistical officer, British National Federation of Iron and Steel Manufacturers; 165 pages, 7½ x 10 inches; published by Ernest Benn Limited, Bouverie street, London, and furnished by IRON TRADE REVIEW, Cleveland and London, for $6 in U. S. A. and £1 1s in Europe.

This book constitutes a survey of the iron and steel resources of the British Empire, including, in addition to Great Britain, Canada, Australia, India, etc. So far as is known it is the only modern publication in which general technical and business information regarding the British Empire iron and steel industry and resources has been collected in one volume in convenient form.

The book is provided with a foreword by the Prince of Wales and general introductions by Sir Eric Geddes, president of the Federation of British Industries, and Arthur Dorman, managing director, Dorman Long & Co., Middlesbrough. The volume is a part of a series of 10 on British Empire resources which is now being published by the federation.

Following a historical sketch, there are chapters on the raw materials of the British iron and steel industry and the resources for the manufacture of iron and steel in the British dominions. Following this are chapters on pig iron, wrought iron, forgings, heavy steel castings, the Sheffield industries, tin plate, sheets, wire, shipbuilding material, structural steel, hoops and strips, railroad car building material, etc., dealing in each case with the development of the industries in question in Great Britain and throughout the British Empire. It is a useful work of reference for the steel industry.

1924 Tax Law Is Analyzed

Numerous Changes from Act of 1921 Set Forth and Explained—Some Applications Puzzling

BY H. ARCHIBALD HARRIS

INCOME tax changes are shown first because they affect most people and concerns, and are classified under "General," "Individual," "Corporations" and "Estates and Trusts." "General" covers changes applying to both corporations and individuals.

In this installment, the general provisions of the law and those applying to corporations are digested. Individual taxes, the gift tax, the estate tax and the miscellaneous taxes will be covered separately in a subsequent issue of IRON TRADE REVIEW.

Sections used after paragraphs are sections of the new 1924 law, except where otherwise stated.

In order to be brief only bare changes have been shown, with little comment.

General Provisions of New Law

Administrative Provisions

If tax not more than $10 may be signed before two witnesses instead of under oath.—Section 1002 (c).

Collector may not grant 30 days extension for filing income tax return.—Section 1003.

Requests for extensions of time for filing returns must be made before the time fixed by law for filing the return.

Assessment and Collection of Tax—Period of Limitation

Taxes for 1921 and subsequent years must be assessed within four years after return filed. No suit after such four years except in case of fraud.—Section 277 (a) (1).

Tax upon income received during life of a decedent shall be *assessed* and any *proceeding in court* for its collection shall be begun within one year after written request therefor (filed after the return is made) by the person representing the estate.—Section 277 (a) (2).

The period of limitation may be extended 60 days for assessment of a deficiency if taxpayer does not file appeal with the board of tax appeals or if appeal has been filed, the extension shall be the number of days between the date of the mailing of the notice and the date of final decision by the board.—Section 277 (c).

Assessment and Final Determination

If tax has been paid *without protest* or abatement, credit or refund has been accepted and written agreement has been made between the commissioner and the taxpayer, case shall be closed and not reopened even by suit, excepting in case of fraud or misrepresentation.—Section 1006 (a).

Board of Tax Appeals

Board consists of seven members (for two years after enactment of act there may be as many as twenty-eight, in the discretion of the President). Members shall be appointed by the President with advice and consent of senate. Terms of all members during first two years shall expire at end of that period. Salary of members, $7500. Hearings before the board shall be open to the public. Findings in every case shall be made in writing and shall be published and sold in the same manner as any other public document. A copy shall be furnished the taxpayer. If the tax in controversy is more than $10,000, the oral testimony shall be reduced to writing and a written opinion shall be given in addition to the finding of facts and the decision.—Section 900.

Claims in Abatement

If a deficiency has been assessed without notice or within 60 days after notice or before the board has reached decision even though the taxpayer has appealed, then abatement claim may be filed. Bond in twice the amount of the assessment shall be furnished. Commissioner shall by registered mail notify taxpayer of decision on the claim. Taxpayer has 60 days in which to appeal to board of tax appeals. Amount disallowed is collectible on notice and demand. Court proceedings for amount allowed may be begun within one year even though time limit may have expired. Interest 6 per cent on amount disallowed from original notice after final decision, thereafter 12 per cent until paid, except in case of estates of incompetent, deceased or insolvent person, rate is 6 per cent.

No abatement claim may be filed except in the three cases above mentioned.—Section 279.

Credit for Taxes

Same as for 1921 *except* that the credit may, at the option of the taxpayer and irrespective of the method of accounting employed, be taken in the year in which the foreign taxes accrued; subject, however, to proper adjustment when the tax is finally paid. If taxpayer adopts this basis for claiming the credit, all future years must be handled in same manner.—Section 222 (c) and 238 (c).

Dates on Which Tax Shall be Paid

Commissioner may grant extension of time for payment of the tax or any installment not to exceed six months.—Section 270 (c) (1).

If extension for payment granted, interest at 6 per cent shall run from original due date of the tax or the installment to date of payment.—Section 270 (c) (2).

No extension possible for payment of tax withheld at source.—Section 270 (d).

Deductions

No loss is allowed on a sale of stock or securities where within 30 days before or after the sale substantially identical property was purchased or contracted for. New act does not say sale must be after passage of this act as in 1921 act.

Defiiciency in Tax

Taxpayer has sixty days in which to appeal to board of tax appeal instead

Tax Service Offered

APPLICATION of changes wrought in federal revenue procedure by the tax bill just signed by President Coolidge will be almost as numerous as taxpayers. In many cases the effect of the retroactive provision will not readily be clear. Accordingly through special arrangement with Archibald Harris & Co., Chicago, certified public accountants, readers of IRON TRADE REVIEW *are tendered the opportunity of receiving free advice on tax or accounting questions. Readers who may be in doubt how to apply the new law either to personal or corporation returns should state their problem fully and mail it to Tax Editor,* IRON TRADE REVIEW, *Cleveland. Prompt consideration will be given and reply made through these columns.*

The author is of the firm of Archibald Harris & Co., certified public accountants, Marquette building, Chicago.

of thirty days as in 1921 act.—Section 274 (a).

After appeal is considered by board of appeals, assessment shall be made and tax shall be paid on notice and demand. Assessment shall not be made of any part of a deficiency found by the commissioner but disallowed by the board. But, suit may be started without assessment. Court shall allow interest at 6 per cent. Such suits shall be begun within one year after final decision of the board.—Section 274 (b).

If no appeal is filed in the 60-day period the deficiency shall be assessed and shall be payable upon notice and demand.—Section 274 (c).

If commissioner believes delay dangerous, he shall assess the deficiency immediately. In such case, assessment may be made without notice or before the 60-day period has expired or before final decision of the board. If such assessment is made and no claim in abatement is filed the deficiency shall be paid upon notice and demand.—Section 274 (d).

If deficiency not paid in accordance with terms of extension, interest at 1 per cent a month shall run from the time the tax was due under the extension to its payment.—Section 274 (g).

No 1 per cent a month interest for negligence as in 1921. Only 5 per cent flat.—Section 275 (a).

Delinquency—Additions to Tax in Case of—

Where tax *computed by the taxpayer* is not paid at prescribed time it bears interest at 1 per cent a month instead of 5 per cent plus 1 per cent a month from notice and demand as under 1921.—Section 276 (a) (1).

If extension of time for payment is granted and tax or interest thereon is not paid in full before the expiration of the extension then, instead of 6 per cent interest shall be 12 per cent.—Section 276 (a) (2).

Where a *deficiency* or *interest* or *penalties* are not paid within ten days after notice and demand, interest runs at 1 per cent a month from time of the notice and demand. (No 5 per cent as in 1921.) If deficiency allocated to installments is not paid when installment is due, interest runs from date of installment.—Section (5). 276 (b).

Estate of incompetents, deceased or insolvent persons shall pay interest at 6 per cent in lieu of 12 per cent.—Section 276 (c).

If claim in abatement is filed interest provided by section 276 shall not apply. —Section 276 (d).

Dividends—Liquidating

In case a corporation pays a partial liquidating dividend it shall not claim that its earnings were taken up by the nontaxable part of such liquidating dividends, and reduced for the purpose of determining the taxability of future distribution of the company.

Amounts distributed in partial liquidation are defined as a distribution by a corporation in complete cancellation or redemption of a part of its stock or one of a series of distributions in complete cancellation or redemption of all or a portion of its stock.—Section 201 (g).

Dividends—Taxable Date

The 1924 act does not specify the date at which a dividend is taxable. This was Section 201 (e) of the 1921 act and was put in as the result of much discussion over the old law.

Gains or Loss from Sales and Exchanges

1924 law has not the provision of the 1921 law, for cases in which property received in an exchange has no readily realizable market value.—Section 203.

No gain or loss is recognized on exchange of property held for productive use in trade or business or for investments (with same exceptions as in 1921) except that in 1924 act if common stock in a corporation is exchanged *solely* for common stock or preferred is exchanged solely for preferred stock of same corporation no gain or no loss.—Section 203 (b) (1).

No gain or loss if *stock* or *securities in a corporation a party to a reorganization* are in the reorganization exchanged *solely* for stock or securities in any corporation a party to the reorganization. Section 203 (b) (2).

(Old law provided for no gain or loss when in a reorganization a person received such stock or securities in exchange for "any stock or securities owned by him.")

No gain, no loss on transfers of property by any person or persons to a corporation *solely in exchange for stock or securities* of the corporation if same person or persons are in control immediately after the transfer (Control same as in 1921 act).—Section 203 (b) (4).

If property described in 203 (b) (1) (2) or (4) just above is received together with money or property of another nature, then gain is recognized but not to exceed the sum of the money and the fair market value of such other property described in 203 (b) (1) (2) or (4).—Section 203 (d) (1).

No gain to a shareholder who in a reorganization does not surrender his old stock, but receives stock or securities of any corporation a party to the reorganization.—Section 203 (c).

In all the foregoing cases of mixed property no loss shall be recognized even though a gain may be recognized.—Section 203 (f).

The new law prohibits a corporation from claiming that a distribution (*in pursuance of a plan of reorganization*) of its stock was a distribution of earnings available for future distribution and does not allow such distribution to be considered in determining the taxability of such future distributions.—Section 203 (g).

Gain or Loss, Depletion and Depreciation

If property acquired after 12/31/20 by transfer in trust (not including a trust by bequest or devise) is sold basis is same value as would have been used by grantor, proper adjustments being made for any gain or loss recognized when the transfer was made.—Section 203 (a) (3).

This value is not to be used in determining gain or loss on trust property transferred during life by an individual under such conditions as rendered the property subject to estate tax at the time of the grantor's death or on the sale of property passing under a general power of appointment by a decedent whether by will or by deed executed in contemplation of death.—Section (a) (3).

In the case of a sale of property received in exchange which would be wholly or partially exempt under this law, the basis shall be the cost or 3/1/13 value of the old property with proper adjustments for any gain or loss accounted for at the time of the exchange.—Section 204 (a) (6).

Bases are (1) cost, (2) bases outlined above or (3) March 1, 1913, value (Basis No. 2 is new). In determining March 1, 1913, value of stock due regard shall be given to the fair market value of the assets of the corporation.—Section 203 (b).

Basis for depletion, depreciation or obsolescence same as basis for determining gain or loss except that depletion in the case of mines, oil or gas wells may be in certain cases based on discovery value. —Section 204 (c).

(1921 methods of determining gain or loss on sale of property owned on 3/1/13 omitted.)

Interest on Refunds and Credits

Interest at 6 per cent to taxpayer on refunds, credits and penalties illegally assessed runs from date such tax penalty or sum *was paid* to date of refunds, or in case of credit, to due date of the amount against which the credit is allowed unless such amount is an additional assessment, then to the date of the assessment of that amount.—Section 1019.

Losses, Net

A net loss shown by a return for a fractional part of a year may be carried forward to the next year or two under 1924 law. Rulings under previous laws allowed only net losses sustained in a full twelve-month period.

It looks as if this action of congress may lead the treasury department to reverse its rulings for prior years and allow net losses for a fractional part of a year.—Section 200 (a) (1).

In computing a net loss a taxpayer uses all deductions connected *with his trade or business* plus any deductions allowed on his income tax return *and not connected with his trade* or *business to the extent of gross income not derived* from such trade or business.—Section 206 (a) (1).

In determining net loss deduction for depletion shall not exceed the amount which would be allowed if computed without reference to discovery value.—Section 206 (a) (3).

"Gross income" for net loss purposes includes all tax free interest received less the amount of interest paid or accrued and losses sustained and not allowed as a deduction from gross income. —Section 206 (a).

Net losses for 1922 are to be handled under the 1921 act.—Section 206 (e).

Net losses for 1923 are to be determined under 1921 act but applied to 1924-1925 income according to 1924 act. —Section 206 (f).

In case of a fiscal year beginning and ending in calendar years having different laws the net loss for such fiscal year shall be the sum of the proportionate part of a net loss computed under each law which corresponds to the part of the fiscal year falling in each calendar year. —Section 206 (g).

Limitation on Assessments and Suits by the United States

With a few exceptions internal revenue taxes shall be assessed within four years after they become due and any suit for their collection must be brought within

five year after they become due.—Section 1009 (a).

In case of fraud, or a failure to file a required return or of a wilful attempt to evade tax, assessment may be made or a suit for collection may be begun without assessment, at any time.—Section 1009 (b).

Where assessment made in time suit may be begun within six years after assessment.—Section 1009 (c).

Limitations on Prosecutions

Limitation on prosecutions for defrauding or attempting to defraud the United States shall be six years.—Section 1010 (a).

Limitation for Suits and Proceedings by Taxpayers

Suit for a recovery of taxes or penalty may be brought whether or not such taxes or penalty was paid under protest or duress.—Section 1014 (a).

Any taxpayer who has been charged with fraud for any year between 1916 and 1921, both inclusive, may now reopen claim for refund or credit for any of those years which were disallowed because the taxpayer failed to come clear of the fraud charge.—Section 1015.

Penalties

Penalty for willful failure to pay or make return, $10,000 or imprisonment not more than one year or both.—Section 1017 (a).

For willful failure to collect and pay over tax or willful evasion of tax $10,000 or imprisonment not more than five years or both.—Section 1017 (b).

For willful aid or assistance in preparing false or fraudulent return affidavit or statement $10,000 or five years or both.—Section 1017 (c).

For willful failure to pay or collect or to account for and pay over any taxes (other than income, estate or gift taxes) or for willful attempt to evade payment of such taxes shall be in addition to other penalties, 100 per cent of the tax evaded.—Section 1017 (d).

Reduction of Income Tax Payable in 1924

1923 taxes reduced 25 per cent for *all* taxpayers other than corporations.—Section 1200 (a).

If entire 1923 tax has been paid 25 per cent shall be credited or refunded.—Section 1200 (b).

If tax being paid in installments the 25 per cent shall be allocated to the four installments. The amount prorated to any installment not yet due shall be used to reduce such installment.

The amount prorated to any installment past due shall be used as a credit against the installment next falling due.—Section 1200 (c).

Provision is made for credit in case taxpayer has an extension of time for payment.—Section 1200 (d).

Provisions are also made for adjustment of deficiencies and overpayment.—Section 1200 (e), (f), (g).

Credit provided for 25 per cent of that part of fiscal year (1923 or 1924) tax applicable to calendar year 1923.—Section 1201 (a).

Twenty-five per cent credit allowed for part of year 1923 if return covers fractional part of year.—Section 1202.

Refunds and Credits

Claim must be filed within four after *tax was paid* instead of five years after return due as in 1921. The credit or refund shall not exceed the tax paid during the four years immediately preceding the filing of the claim or if no claim was filed then during the four years immediately preceding allowance of credit or refund.—Section 281 (b).

If 1917 or 1918 waivers filed, claim may be filed at any time before April 1, 1925, or within four years from the time the tax was paid.—Section 281 (e).

Any claims now on file are valid and claims for 1919 or 1920 may be allowed if claim is filed before five years after return was due.—Section 281 (f).

Returns—False or Fraudulent

In case of false or fraudulent returns or failure to file a return, tax may be assessed or court action may be brought at any time.—Section 278 (a).

Any deficiency due to a change in an amortization deduction under either 1918 or 1921 act may be assessed or a proceeding in court without assessment may be begun at any time subsequent.—Section 278 (b).

Where assessment made in time provided by law, such tax may be collected by distraint or proceeding in court begun within six years after *assessment.* Court action may be begun *without assessment* at any time before the expiration of the statute of limitations.—Section 278 (d).

Returns to be Made Public Records

If the ways and means committee of the house, the senate, finance committee or a special committee of either house of congress calls upon the secretary of the treasury for any income tax returns it shall be his duty to give such committee all data contained in or shown by such returns.

Proper officers of a state may upon request of its governor have access to the returns of any corporation (not any other taxpayer) even though such state does not impose an income tax law.

Commissioner may add to the public list of taxpayers' names and addresses kept in the collector's offices the amount of tax paid by every taxpayer.

How New Law Affects Corporations

Capital Gains or Losses

Corporations allowed all capital losses.

China Trade Act

Entirely new. Special credits for corporations organized under the China Trade act, 1922.—Section 263.

Consolidated Corporations

Affiliation established if one corporation owns at least 95 per cent of the voting stock of the other or others or if at least 95 per cent of the voting stock (instead of "substantially all") or two or more corporations is owned (instead of owned or controlled) by the same interest.—Section 240 (c).

The commissioner shall if necessary in order to correctly establish income of two or more related trades or business owned or controlled by the same interests consolidate the accounts of such trades or business, such consolidation to be made at the request of the taxpayer as well as at the demand of the commissioner, which was the only way in the 1921 act.—Section 240 (d).

Exempt Corporations

A local association of employes, the membership of which is limited to the employes of a designated person in a particular municipality and the net earnings of which are devoted exclusively to charitable, educational or recreational purposes is exempt.—Section 231 (8).

Benevolent life insurance associations of a purely local character and mutual casualty insurance companies are exempt. Most corporations are not required to be of "purely local character" as was the case under the 1921 act. To be exempt such corporations must derive 85 per cent of their income from amounts collected from members for the sole purpose of meeting expenses, instead of deriving their sole income from such sources as under 1921 act.—Section 231 (10).

Evasion of Surtaxes

When a corporation holds earnings to prevent payment of surtaxes by its shareholders an additional tax of 50 per cent of the corporation's net income shall be added instead of 25 per cent as in 1921.—Section 220.

Net income means taxable net income plus any dividends received and plus any interest on obligations of the United States which would be taxable in the hands of an individual instead of taxable net income as in 1921.

1924 act does not allow the shareholders to elect to be taxed as members of a partnership as under 1921 act.

The fact that a corporation is a mere investment company is prima facie evidence of a purpose to escape taxation.

Deductions

Dividends not allowed as a deduction include those paid by a corporation organized under the China Trade act of 1922.—Section 234 (a) (6).

Gain or Loss—Basis for Determining

If property (other than stock or securities of a company a party to a reorganization) was acquired after 12/31/17 by a corporation in connection with a reorganization and immediately after the transfer an interest of 80 per cent or more in such property remained in the same persons or any of them, the basis shall be the same as if the transferor had sold the property adjusted by any gain or loss recognized at the time of the transfer.—Section 204 (a) (7).

In case of sale of property (other than stock or securities of a corporation a party to a reorganization) acquired after 12/31/23 by corporation by the issuance of its stock where after the transfer the control of the corporation was in the persons who transferred the property to it, the basis is same as if transferor had sold the property, adjustment being made for any gain or loss recognized

when transfer was made.—Section 204 (a) (8).

Gain or Loss—Recognition of

No gain, no loss when corporation in a reorganization exchanges property *solely* for stock or securities in another corporation which is party to the reorganization.—Section 203 (b) (3).

If the corporation referred to above receives, in addition, other property or money the transaction is not entirely tax-exempt unless the recipient corporation distributes such money or other property in *pursuance of the plan of reorganization.* If this is done, no gain and no loss.

If, however, the recipient corporation does not distribute it *in pursuance of the plan of reorganization* the gain, if any, shall be recognized and shall be accounted for by the recipient corporation but not in excess of the sum of money and the value of such other property which is not distributed.—Section 203 (e).

Reorganization same as 1921 except that the 1924 act makes the term include a transfer by a corporation if immediately after the transfer, the transferor or its stockholders or both are in control of the corporation to which the assets are transferred.—Section 203 (h).

"Party to a reorganization" is defined as including a corporation resulting from a reorganization and as including both corporations in case of an acquisition by one corporation of at least a majority of the voting stock and at least a majority of the total number of shares of all other classes of stock in another corporation.—Section 203 (b) (2).

Losses—Net

In case of corporations, computation of net losses shall not include dividends allowed as deduction for the tax year.—Section 206 (a) (4).

Personal Service Corporations

Personal service corporations are not now recognized. (Was Section 200 (5) of 1921 act.)

Refunds, Administration

Any income taxes paid by farmer's mutual or other mutual, hail, cyclone or fire insurance companies (if otherwise exempt even though they are not of a purely local character) not outlawed shall be refunded.—Section 1013 (b).

Rates

Corporation income tax rate 12½ per cent—same as 1921.

Seek Increase in Tariff

Washington, June 10.—Support of the government of Australia for increased tariff duties on imports of iron and steel has been asked by representatives of Newcastle iron and steel and other interests, who declare that a strong combination of overseas producers is driving Australian concerns out of business. Trade reports to the United States department of commerce add that after a somewhat sensational slump in the middle of March in the Australian metal markets, an upward trend began to develop.

Reciprocal Buying

Practiced by Steam Equipment Maker —Testimony at Bethlehem Hearing

New York, June 9.—An unusual method of purchasing of steel recently was described by J. W. Haslam, purchasing agent, Babcock & Wilcox Co., Bayonne, N. J., in testifying in the hearings of the federal trade commission's action to set aside the acquisition of the Midvale, Cambria and Lackawanna companies by the Bethlehem Steel Corp. Mr. Haslam said he does not send out inquiries, he is not solicited by any of the steel companies; nor does he receive any quotations. His company's purchases are governed by reciprocal trading.

"In proportion that the steel companies buy from us, we apportion our orders," he said. "The orders are sent to the steel companies and the Babcock & Wilcox Co. expects them to bill the steel at the price to preferred customers."

Representatives of important structural fabricators in the New York territory were called to testify in recent hearings. Their testimony tends to show that the fabricators in metropolitan territory buy on an average 75 to 95 per cent of their total steel requirements from the Bethlehem corporation. The testimony showed that the acquisitions of the Midvale, Cambria and Lackawanna companies were negligible factors in the supply of steel for structural purposes here. Some fabricators said shipments from Bethlehem come to New York overnight or, at most in two days, whereas the time from Pittsburgh and Buffalo is much longer. Fabricators who testified were A. J. Glaeser, purchasing agent, Levering & Garrigues Co.; A. N. Coneen, vice president and general manager, Hedden Iron Construction Co.; George W. Harris, president, Harris Structural Steel Co.; James H. McGee, purchasing agent, Hinkle Iron Co.; T. J. Foster, chairman, National Bridge Works; J. L. Hay, president, Hay Foundry & Iron Works, and C. L. Clarke, vice president and treasurer, George A. Just Co. All of these companies are in the New York territory. Others included W. R. Whitney, president, West Side Structural Co., Watervliet, N. Y., and J. K. Williamson, president, Porcupine Co., Bridgeport, Conn.

Same jobbers said they have stopped buying from a certain steel company because of a selling policy they regard as unjust. P. Benedict, vice president, Faitoute Iron & Steel Co., Newark, testified that on April 1, 1923, he had large unfilled tonnages on the order books of the steel mills. On April 1, 1924 he had an unfilled order with the steel mills for only 500 tons. Jobbers who testified included A. H. Bragg, president, Egleston Bros. Co., Long Island City; Thomas W. Kiley, Thomas W. Kiley Co, Brooklyn; August Deuchler, assistant secretary, James A. Coe & Co., Newark; John H. Walters, secretary, Chapin & Bangs Co., Bridgeport, and Robert B. Shearer, manager, steel department, C. S. Mersick & Co., New Haven.

Others who testified are Michael Bash, purchasing agent, Pardee Steel Corp., Perth Amboy, N. J.; Benedict Gifford, president, Gifford Wood Co., Hudson, N. Y.; H. E Marshall, purchasing agent, Russell, Burdsall & Ward Bolt & Nut Co, Port Chester, N. Y.; D. W. Williams, purchasing agent, R. Wallace & Sons Mfg. Co, Wallingford, Conn.; George H. Merrill, Merrill Bros., Maspeth, L. I.; James D. Cowan, secretary and treasurer, National Lock Washer Co., Newark; William E. Hedgecock, assistant to the vice president, American Car & Foundry Co.; George Kefer, purchasing agent, Long Island railroad and W. J. Farrell, assistant general purchasing agent, American Locomotive Co.

More Tariff Reductions Listed in Canada

Ottawa, Ont., June 10.—In an amendment to the budget introduced in the house of commons by J. A. Robb, acting finance minister of Canada, additions to the free list are announced. These additions include steel dies, worth $1000 or more, for stamping metal plates, the present duties being 15 to 27½ per cent. Ingot molds for production of steel, reduced from 10 to 7½ per cent under general tariff on April 30, now are placed on the free list. Fire brick for open-hearth furnaces, etc., in past partly free and partly dutiable at 15 per cent, now get a drawback of 99 per cent of duty. Sales tax exemption also is extended to include steel dies worth $1000 and more. The resolution in regard to sales tax exemption goes in effect July 1, while tariff changes date back to April 11.

J. E. McLurg, vice president of the British Empire Steel Corp., states that as a result of recent budget proposals with respect to the inclusion on the free list of foreign made steel products, bars, rods, pig iron, etc., entering into the manufacture of agricultural implements and machinery, the corporation has discontinued the production of foundry pig iron. No. 7 blast furnace was blown out May 12. No. 8 furnace which was producing foundry iron was changed to basic production May 10, while No. 1 furnace is being repaired. The closing of No. 7 blast furnace means that one battery of coke ovens will have to be shut down.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

THE Wiley Machine Co., Los Angeles, Cal., is building a plant to accommodate its enlarged volume. Hamm & Grant, Inc., industrial engineers, 607 Ferguson building, Los Angeles, have completed the architectural and engineering plans, and have started work on the erection of the building, which will be completed early in July. The first unit of the 1-story building is 80 by 100 feet, with brick walls, steel sawtooth trusses, steel sash. Provision has been made in the design and layout for the addition of a second unit of the same size on the west side of the present building. The Wiley Machine Co., was organized in 1919, to handle high grade general machine work, including tools, dies, special machinery, screw machine products and metal stampings.

* * *

RECENT increase of capitalization from $60,000 to $150,000, was made by the Geneva Boiler Works, Irvington, N. Y., to accommodate its expansion program. The company has installed new 12-inch rolls, a four-foot radial drill, a compressor, new punches, and other equipment. It manufactures tubular boilers, tanks, etc.

* * *

INCREASED facilities have been provided by the Newburgh Steel Co., Cleveland, by transferring its offices and warehouse to 6318 Kinsman road, where a 45 x 400-foot plant is occupied. It is equipped with scales, squaring shears, pickling vats and oiling equipment. The capital recently was increased from $10,000 to $50,000. M. Cohen is president and S. Friedman secretary and treasurer.

* * *

QUALITY TOOLS CORP., New Wilmington, Pa., incorporated a few months ago, now is manufacturing pneumatic chisels and hand tools for machinists. J. A. McLaughry is president of the company which was incorporated with $25,000 capital. R. R. Miller is vice president; D. H. McQuiston, secretary and treasurer, and William McLaughry and William B. McCrory, directors.

* * *

CONSTRUCTION has been started by D. June Machinery Co., Waco, Tex., of a plant for housing its machine shops. A 2-story office building recently was completed. The plant in course of construction will be 165 x 375 feet. Ground has been filled and foundations laid for a new foundry. M. Holdeman is president of the company, Gatlin G. Boothe, general manager; June Holderman vice president, and W. C. Zahm secretary and treasurer.

* * *

PRODUCTION is underway on a new twin engine recently developed and perfected by the Finley Machinery Co., Valdosta, Ga., and the machine shortly is to be placed on the market by this company according to D. A. Finley, head of the company.

* * *

NEWARK WIRE CLOTH CO., Newark, N. J., has established its operations in a new plant at 351 Verona avenue. The plant is 100 x 310 feet and manufactures wire cloth of aluminum, brass, copper, bronze, silver, gold, platinum, phosphorus bronze, nickel, steel, monel metal, special alloys, etc.

* * *

A H. OBENDORFER, advertising manager of the Sivyer Steel Casting Co., Milwaukee, has been re-elected president of the Milwaukee Industrial Advertisers association. O. C. Dahlman, Koehring Corp., that city, manufacturer of concrete mixers, etc., was elected secretary. William H. Brandt of the Chain Belt Co., was elected treasurer, and J. J. Keegan, Bucyrus Co., South Milwaukee, was appointed in charge of public information.

* * *

ONE hundred per cent increase in core capacity is being made by the American Malleable Castings Co., Marion, O., manufacturer of malleable iron castings. The core room is being increased by a 64 x 60-foot addition. A heating plant for heating the entire foundry is being put in. Equipment for these additions already has been purchased. Charles L. LaMarche is president of the company, Carl F. LaMarche, vice president and treasurer and Daniel L. LaMarche, secretary.

* * *

IN THE reorganization of the Nordyke & Marmon Co., Indianapolis, manufacturer of automobiles, G. M. Williams, the new president, has assumed active leadership. He formerly was president of the Wire Wheel Corp., Buffalo, and for six years was general manager of the Dayton-Wright Co. Walter C. Marmon, formerly president of the Nordyke & Marmon Co., is chairman of the board of directors. Howard C. Marmon, designer, remains as vice president and chief engineer. Other executive heads to remain are A. R. Heiskell, F. S. Gorrell, H. L. Purdy and H. G. Shafer.

* * *

THE Federal Steel Products Co., Newark, N. J., recently has disposed of its plant on Frelinghuysen avenue and has erected a large new one in the South Orange district. The company will continue to specialize in the manufacture of electric conduit boxes and safety switches. About 75 tons of steel sheets are consumed each month. Officers of the company are M. Moreines, president, M. Quenzel, treasurer, L. Starobin, vice president and S. Moreines, secretary.

* * *

THE Carthage Machine Co., Carthage, N. Y., manufacturer of pulp and paper mill machinery, will establish a manufacturing plant at Bellville, Ont. The company has purchased the land, buildings and property of the J. C. Wilson Mfg. Co., Ltd., and will make some changes for manufacturing purposes. In connection with the undertaking the Carthage Machine Co. of Canada, Ltd., has been formed as a subsidiary of the New York company. F. S. Wilson, president and principal stockholder of the J. C. Wilson Mfg., Co., has been appointed vice president and general manager of the new company. A. K. Hinds is president and A. E. Wardell secretary and treasurer.

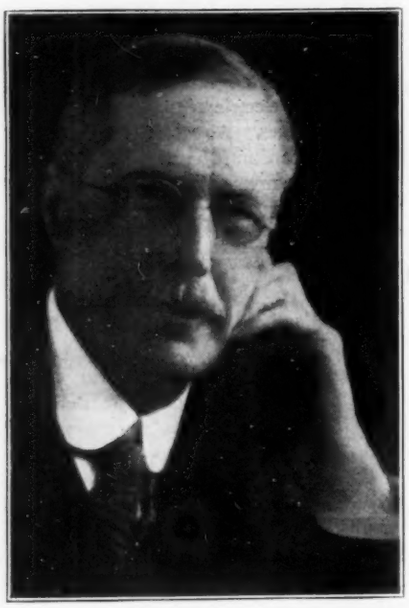
* * *

ORDERS for all necessary additional equipment has been placed for plant expansion by the East St. Louis Castings Co., East St. Louis, Ill. A 2-story, brick, steel and concrete building 28 x 80 feet is being constructed. The lower floor will be used for the core room and sand blasting department while the upper floor will be used for pattern shop and storage. A 1-story monitor type brick and steel addition, 75 x 125 feet, also is being constructed. This will be an addition to the foundry proper and will be used for molding floors. The East St. Louis Castings Co. runs a production shop specializing in small castings for motors, electrical fittings, etc. Ralph W. Hill is president.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

SIR WILLIAM ELLIS, G. B. E., D. Eng., recently elected president of the Iron and Steel institute, England, is managing director of John Brown & Co., Ltd., Sheffield and Clydebank, Glasgow, engineers and shipbuilders, and director of Davy Bros., Sheffield, and other companies. He was born in 1860, the son of John Devonshire Ellis, who for many years



SIR WILLIAM ELLIS

was prominent in the Sheffield steel industry. Educated at Uppingham school, he served a five years' apprenticeship with a Leeds engineering firm. Some years were spent abroad, chiefly erecting machinery and plants in eastern Serbia and the Balkan countries. His connection with John Brown & Co., began in 1887, after completing the erection of the first forging press installed by the firm. He spent a few years developing the manufacture of marine shaftings and forgings. John Brown & Co. also specialized in the hollow rolling of turbine drums and gear wheels of large tonnage. During the war, Sir William was Master Cutler of Sheffield. In recognition of valuable services rendered the government he was made a Knight Cross of the British Empire. He is also Commander of the Crown of Italy. The degree of doctor of engineering was awarded him at Sheffield university. After the war he became deputy-chairman of the Disposals board. He is a vice president of the Institute of Civil Engineers; member of the Overseas committee of the Board of Trade and member of the executive board of the National Physical laboratory.

* * *

R. M. Wolvin, president of the British Empire Steel Corp. has gone to Europe to negotiate with German iron and steel manufacturers for delivery of iron ore from the mines of the corporation at Newfoundland.

* * *

T. O. Westhafer, chief chemist of the coke plant of the Colorado Fuel & Iron Co., Denver, has been advanced to assistant superintendent of that department. James M. Scharf, assistant chief chemist, succeeds Mr. Westhafer.

* * *

Louis W. Landay, formerly assistant district manager for the Hyman-Michaels Co., First National Bank building, Pittsburgh, is now Pittsburgh district manager for the Emerman Co., Erie, Pa., with offices in the Frick building.

* * *

R. Burt Kernohan has retired as general superintendent of the Woodlawn plant of the Jones & Laughlin Steel Corp., Pittsburgh, as well as relinquishing his position as director. His retirement from active business is accompanied by the announcement he plans a World tour.

* * *

Samuel W. Gardner, since 1904 superintendent of the rolling mills at the Ohio works at Youngstown, of the Carnegie Steel Co., has resigned and retired from service. Mr. Gardner went to Youngstown from the South works of the Illinois Steel Co. in 1901, where he had started as a roll shop hand in 1891.

* * *

Andrew Glass, on June 15, will take general charge of plant operations for the Wheeling Steel Corp., Wheeling, W. Va., which he left two years ago to enter business in New York. He will succeed William Stoop who is reported as the probable successor to H. L. Shreck, as engineer in charge of construction.

* * *

William H. Woodin, president of the American Car & Foundry Co. has resigned as a director of the Westhouse Electric & Mfg. Co. and the American Beet Sugar Co. Mr. Woodin's resignation as a director of the following corporations is expected: American Locomotive Co., Canadian Car & Foundry Co., Chase Securities Corp., Cuba Railroad Co., General Motors Co., Montreal Locomotive Works, Vacherie Cypress Co., Compania Cubana and the American Exchange Securities Corp. It is stated by Mr. Woodin's father that the younger Mr. Woodin despite his disinclination toward being in business will continue as president of the American Car & Foundry Co. Mr.

A. G. OAKLEY

Woodin is abroad and is expected to be back in New York by June 20.

* * *

A. G. Oakley, well known iron and steel man of the Northwest, has been appointed representative in that district for the Youngstown Sheet & Tube Co., Youngstown. He will have his headquarters in the Central building, Seattle, and succeeds the late George F. Thompson. Mr. Oakley had been connected with the Cambria Steel Co. at Philadelphia for 14 years. In 1914 he joined the Hilton Co., Seattle, and in 1917 was made a member of Hilton-Pike-Oakley Co., mill representative for Inland Steel Co., Otis Steel Co., Gulf States Steel Co., Superior Sheet Steel Co., and others. He has severed his connections with the Hilton-Pike-Oakley Co.

James D. Gilhuly, California representative for the Youngstown company temporarily in charge in the Northwest after the death of Mr. Thompson, has returned to San Francisco.

Many Papers For Testing Materials Meeting

A wide range of technical papers has been arranged for the twenty-seventh annual meeting of the American Society for Testing Materials which is to be held at the Chalfonte-Haddon Hall, Atlantic City, N. J., June 24-27. On Tuesday, the opening day, two simultaneous meetings will be held. Simultaneous sessions also will be held Wednesday, Thursday and Friday mornings, and Tuesday and Thursday evenings. The annual business meeting will be held Wednesday evening. With the exception of Tuesday, the afternoons have been held open for committee meetings and recreation. Following is the program of the convention as it concerns iron and steel:

TUESDAY, JUNE 24

Afternoon

Symposium on Corrosion-Resistant, Heat-Resistant and Electrical-Resistance Alloys.

Papers: "Introduction to Symposium with Tabulation of Manufacturers' Data on Composition and Properties of the Alloys," by Jerome Strauss, chairman; "Corrosion-Resistant Metals—Past, Present and Future," by P. A. E. Armstrong; "Corrosion-Resistant Alloys for Use in Mine Water," by R. J. Anderson and G. M. Enos; "Endurance Properties of Corrosion-Resistant Steels," by D. J. McAdam Jr.; "Non-rusting Chromium-Nickel Steels," by B. Strauss; "Stainless Steels; Their Heat Treatment and Resistance to Sea-Water Corrosion," by Jerome Strauss and J. W. Talley; "The Carrying Capacity of Ball Bearings Made of Stainless Steel," by Axel Hultgren.

Evening

Symposium on Corrosion-Resistant, Heat-Resistant and Electrical Resistance Alloys. (Continued.)

Papers: "Metals for High-Temperature Service—Past, Present and Future," by F. A. Fahrenwald; "Deterioration of Metals in Hot Reducing Gases," by J. S. Vanick; "Some Engineering Applications of High-Chromium Iron Alloys," by C. E. MacQuigg; "Steels for Automotive Engine Valves," by J. B. Johnson and S. A. Christiansen; "Cast Metals for High-Temperature Service," by L. O. Hart; "Some Electrical Properties of High-Resistance Alloys," by M. A. Hunter and A. Jones; "Characteristics of Some Materials for Base-Metal Thermocouples," by F. E. Bash.

WEDNESDAY, JUNE 25

Morning

Nonferrous Metals, Corrosion and Metallography.

Committee reports: Committee *B*-2 on nonferrous metals and alloys, by William Campbell, chairman; Committee *A*-5 on corrosion of iron and steel, by J. H. Gibboney, chairman; Committee *D*-14 on screen wire cloth, by R. W. Woodward, chairman; Committee *B*-3 on corrosion of nonferrous metals and alloys, by E. C. Lathrop, chairman; Committee *E*-4 on metallography, by W. H. Bassett, chairman.

Papers: "Types of Apparatus Used in Testing the Corrodibility of Metals," by H. S. Rawdon, A. I. Krynitsky and W. H. Finkeldey; "An Accelerated Electrolytic Corrosion Test," by R. J. Anderson and G. M. Enos.

Evening

Annual address by President Guilliaem Aertsen.

Annual report of executive committee, by C. L. Warwick, secretary-treasurer.

Reports of all standing and special committees.

Report of Committee *E*-6 on papers and publications, by C. L. Warwick, chairman.

Informal dance and smoker.

THURSDAY, JUNE 26

Morning

Steel Session.

Committee reports: Committee *A*-1 on steel, by F. M. Waring, chairman; Committee *A*-4 on heat treatment of iron and steel, by H. M. Boylston, chairman; Joint committee on investigation of phosphorus and sulphur in steel, by George K. Burgess; Committee *A*-9 on ferroalloys, by F. C. Langenberg, chairman.

Papers: "How Can the Benefits of A. S. T. M. Standardization Be Secured to the Small User," by T. H. Wiggin; "High Tensile Strengths with Low-Carbon Steels," by R. H. Smith; "Composition and Physical Properties of Cast 12-Per Cent Manganese Steel," by J. H. Hall and G. R. Hanks.

Evening

Methods of Testing and Nomenclature.

Committee reports: Committee *E*-8 on nomenclature and definitions, by Cloyd M. Chapman, chairman; Committee *E*-1 on methods of testing, by J. A. Capp, chairman.

Papers: "A study of Sieve Specifications," by L. V. Judson; "Testing Sieves," by D. A. Abrams; "Physical Tests of Thin-Gage Metals and Light Alloys," by H. A. Anderson; "Determination of Poisson's Ratio and a Suggestion for Its Use in Stress Analysis," by T. M. Jasper; "Direct Measurement of Poisson's Ratio for Concrete," by A. N. Johnson.

FRIDAY, JUNE 27

Morning

Magnetic Analysis and Fatigue of Metals.

Committee reports: Committee *A*-6 on magnetic properties, by C. W. Burrows, chairman; Committee *A*-8 on magnetic analysis, by F. P. Fahy, chairman.

Papers: "Magnetic Tests of A.S.T.M. Drills," by W. B. Kouwenhoven; "Notes on Some Endurance Tests of Metals," by H. W. Gillett and E. L. Mack; "Accelerated Fatigue Tests and Some Endurance Properties of Metals," by D. J. McAdam Jr.; "Resistance of Metals to Repeated Static and Impact Stresses," by R. R. Moore.

Evening

Wrought and Cast Iron and Cast-Iron Pipe.

Committee reports; Committee *A*-2 on wrought iron, by H. E. Smith, chairman; Committee *A*-7 on malleable castings, by Enrique Touceda, secretary; Committee *A*-3 on cast iron, by Richard Moldenke, chairman.

Papers: "Chain; the Effect of Proofing and of Annealing on Brittleness in Large Chain Links," by C. G. Lutts; "Recent Investigations on Cast Iron for Pipe," by Richard Moldenke; "American Water Works Association Test Bar," by J. T. MacKenzie.

Cut Manganese Ore Rate

The Southern Freight association has authorized a rate of 11½ cents per 100 pounds on manganese ore from the port of Mobile to Birmingham, Ala., and the adjacent Birmingham district, effective in about a month or six weeks. Considerable shipments of this ore reach Mobile, for the steel plants in Birmingham and North Alabama territory.

H. A. Brassert, Inc., Chicago, has increased its capital stock from 1000 shares to 2500 shares no par value.

Obituaries

EVERETT D. ARNOLD, well known to all manufacturers of oil pipe and oil country goods as the inventor of the "E. D. A." specifications, died June 5 at his country home at Larchmont Manor, N. Y., aged 65. After receiving a meager education, Mr. Arnold became a machinist and later entered the employment of the Pratt Refining Co., Brooklyn, as engineer. The late H. H. Rogers became interested in Mr. Arnold and sent the latter to Troy, N. Y., where he was active in building the plant of the Troy Iron & Steel Co. Later Mr. Arnold made several trips to Europe, and studied the manufacture of pipe in various countries. As a result of his studies, he formulated the "E. D. A." specifications. He controlled these specifications, under which many millions of tons of oil pipe and oil country goods since have been made and continue to be made.

* * *

Arthur O. Hubbard, president of the Puffer Hubbard Mfg. Co., Minneapolis, manufacturer of barrows, died May 13.

* * *

Henry Johnsón, for many years foundry superintendent for the Bullard Machine Tool Co., Bridgeport, Conn., died recently.

* * *

James T. Fahnestock, treasurer of the Pennsylvania railroad since 1909, and also treasurer of the Long Island railroad, died at Philadelphia June 8, following an operation for appendicitis. He was 64 years of age.

* * *

Freeman B. Cowan, manager of the St. Lawrence Steel & Wire Co., Gananoque, Que., died suddenly in Quebec, June 1.

* * *

Col. William Hendrie, president of the Hamilton Bridge Works Co., Hamilton, Ont., died May 26, at the age of 60 years. He was prominent in business and military circles in Canada.

* * *

Edward Clapp Shankland, civil engineer, died June 3, at his home, 4810 Dorchester avenue, Chicago. Mr. Shankland was awarded the Telford gold medal and Telford premium by the American Institute of Civil Engineers in 1896 for his work on steel skeleton construction. He was engineer for D. H. Burnham & Co. from 1894 to 1898 when he organized E. C. & R. M. Shankland. He designed and constructed the municipal pier, Chicago.

* * *

Louis Fusz, a leading independent lead and zinc operator and pioneer iron and steel man of St. Louis, died at his home there last week at the age of 85 years. He was a native of France and came to this country in 1853 and settled in St. Louis, where he entered the firm of Chouteau, Harrison & Valle, owners of the Laclede Rolling Mills. Later he entered business for himself, and at the time of his death was president of the Desloge Consolidated Lead Co., and an officer in other companies.

1923 Steel Output Near Record

Ingots and Castings Totaling 44,943,696 Gross Tons Are Only 116,911 Tons Below the 1917 Record Production

PRODUCTION of steel ingots and castings in 1923 increased 26.2 per cent over 1922 and was the second highest in history, according to official statistics compiled by the American Iron and Steel institute. The output of 44,943,696 gross tons was but 116,911 tons short of the high point output of 45,060,607 tons of 1917. Compared with the 1922 producion of 35,602,926, the 1923 production represented an increase of 9,340,770 tons. Finished rolled steel production was the largest in history.

Production of steel ingots alone in 1923 was 43,485,665 tons, a gain of 8,917,247 tons, or 25.8 per cent, over the 34,568,418 tons of the preceding year. Steel castings totaled 1,458,031 gross tons, compared with the 1,034,508 gross tons of 1922, an increase of 423,523 tons, or 40.8 per cent. Castings production was the highest in history. In 1923, 163 works in 24 states and the District of Columbia made steel ingots, against 157 works in the same territory in 1922. During 1923, 296 works in 32 states, the District of Columbia, Alaska, Canal Zone and Panama, made steel castings, against 289 works in the same territory in 1922.

Included in the 34,665,021 tons of basic open-hearth steel ingots and castings produced in 1923 was 2,919,286 tons of duplex steel ingots and castings which was made from metal partly purified in bessemer converters and then finally completed in basic open-hearth furnaces, against 1,651,089 tons in 1922, an increase of 1,268,197 tons, or 76.81 per cent. Production of duplex steel in 1921 was 840,251 tons and in 1920, 3,279,119 tons. The output of alloy steel in 1923 was 2,106,489 tons, as against 1,673,496 tons in 1922. Of this amount 2,014,269 tons was in the form of ingots and 92,220 tons of castings. Electric steel made in 1923 was 194,976 tons, compared with 346,039 tons during 1922.

Finished rolled iron and steel made in 1923 aggregated 33,277,076 gross tons, an increase of 6,825,072 tons, or 25.8 per cent over the 26,452,004 tons of the previous year. This production was the highest on record, being 209,376 tons better than the previous maximum point of 33,067,700 tons in 1917. In 1923 there were 394 plants in 29 states and the Canal Zone, Panama, which rolled finished forms of iron or steel, as compared with 385 plants in 28 states and the Canal Zone, in 1922.

The range in gains of various products was large, some showing increases as low as 4 per cent and others as high as 39 per cent. Plates and sheets increased from 7,968,397 tons in 1922 to 9,497,717 tons in 1923; wire rods from 2,654,741 tons to 3,075,892 tons; structural shapes from 2,718,768 tons to 3,405,197 tons; merchant bars from 3,978,658 tons to 5,552,796 tons; concrete bars from 575,816 tons to 680,867 tons; skelp from a revised total of 2,872,215 tons to 3,734,336 tons; tin and terne plates from a revised total of 2,884,884,227 pounds to 3,375,369,794 pounds; galvanized sheets from 2,275,704,463 pounds to 2,530,603,954 pounds; cut and wire nails from 15,053,330 100-pound kegs to 17,672,582; and pipes and tubes from 2,732,236 tons to 3,351,023 tons.

Of the total finished production in 1923, about 97.13 per cent was rolled from steel, as compared with about 96.6 per cent in 1922.

PRODUCTION OF STEEL INGOTS AND CASTINGS BY PROCESSES.

Years	Open-hearth. Basic.	Open-hearth. Acid.	Open-hearth. Total.	Bessemer.	Crucible.	Electric.	Miscellaneous	Total. Gross Tons.
1909	13,417,472	1,076,464	14,493,936	9,330,783	107,355	13,762	9,185	23,955,021
1910	15,292,329	1,212,180	16,504,509	9,412,772	122,303	52,141	3,194	26,094,919
1911	14,685,932	912,718	15,598,650	7,947,854	97,653	29,105	2,844	23,676,106
1912	19,641,502	1,139,221	20,780,723	10,327,901	121,517	18,309	2,853	31,251,303
1913	20,344,626	1,255,305	21,599,931	9,545,706	121,226	30,180	3,831	31,300,874
1914	16,271,129	903,555	17,174,684	6,220,846	89,869	24,009	3,622	23,513,030
1915	22,308,725	1,370,377	23,679,102	8,287,213	113,782	69,412	1,527	32,151,036
1916	29,616,658	1,798,769	31,415,427	11,059,039	129,692	168,918	604	42,773,680
1917	32,087,507	2,061,386	34,148,893	10,479,960	126,716	304,543	495	45,060,607
1918	32,476,571	1,982,820	34,459,391	9,376,236	115,112	511,364	329	44,462,432
1919	25,719,312	1,229,382	26,948,694	7,271,562	63,572	384,452	2,952	34,671,232
1920	31,375,723	1,296,172	32,671,895	8,883,087	72,265	502,152	3,535	42,132,934
1921	15,082,564	507,238	16,589,802	4,015,938	7,613	169,499	945	19,783,797
1922	28,387,171	921,812	29,308,983	5,919,298	28,606	346,039	....	35,602,926
1923	34,665,021	1,234,636	35,899,657	8,484,088	44,079	515,872	....	44,943,696

PRODUCTION OF STEEL CASTINGS.

1909.	306,005	295,035	601,040	33,814	12,683	306	8,399	656,242
1910.	433,976	429,375	863,351	58,335	14,632	1,320	3,194	940,832
1911.	266,626	304,565	571,191	57,101	14,030	1,878	2,427	646,627
1912.	443,998	426,850	870,848	68,750	20,550	4,162	2,311	966,621
1913.	460,161	450,055	910,216	80,506	17,571	9,207	3,244	1,020,744
1914.	334,144	270,173	604,317	65,882	11,186	8,551	3,310	693,246
1915.	333,103	402,229	735,332	92,476	14,756	23,064	1,196	866,824
1916.	605,512	570,937	1,176,449	142,791	9,351	42,870	302	1,371,763
1917.	558,568	654,588	1,213 156	159,272	3,834	64,911	234	1,441,407
1918.	505,880	634,950	1,140,830	160,844	1,330	108,296	110	1,411,410
1919.	313,985	448,555	762,520	98,819	1,009	111,610	2,579	976,437
1920.	449,330	537,070	986,400	104,980	1,729	155,196	3,237	1,251,542
1921.	217,957	216,488	434,445	38,809	736	85,095	628	559,713
1922.	425,981	404,767	830,748	47,733	1,045	154,982	.....	1,034 508
1923.	571,310	581,299	1,152,609	67,512	1,952	235,958	.....	1,458,031

PRODUCTION OF ALLOY STEEL INGOTS AND CASTINGS.

Years.	Ingots.	Castings	Total.	Years.	Ingots.	Castings	Total.
1910...	538,462	29,357	567,819	1917..	1,576,806	67,529	1,644,335
1911...	425,169	56,290	481,459	1918..	1,721,367	66,485	1,787,852
1912...	689,392	103,109	792,501	1919..	1,435,816	45,372	1,481,188
1913...	625,430	88,927	714,357	1920..	1,591,939	68,353	1,660,292
1914...	577,107	69,846	646,953	1921..	769,293	40,255	809,548
1915...	923,251	97,896	1,021,147	1922..	1,614,392	59,104	1,673,496
1916...	1,306,157	56,458	1,362,615	1923..	2,014,269	92,220	2,106,489

PRODUCTION OF ALLOY STEEL INGOTS AND CASTINGS BY PROCESSES, GROSS TONS, 1923.

Processes.	Ingots.	Castings.	Total.
Open-hearth steel—basic	1,612,312	3,786	1,616,098
Open-hearth steel—acid	109,676	38,656	148,332
Bessemer steel	109,851	20,621	130,472
Crucible steel	16,508	103	16,611
Electric steel	165,922	29,054	194,976
Total.....Gross tons.	2,014,269	92,220	2,106,489

TOTAL PRODUCTION OF ALL KINDS OF FINISHED ROLLED IRON AND STEEL, 1887–1923.

Years	Iron and steel rails.	Plates and sheets.	Nail plate.	Wire rods.	Structural shapes.	All other finished rolled.	Total. Gross tons.
1887.	2,139,640	603,355	308,432	.....	.....	2,184,279	5,235,706
1888.	1,403,790	609,527	289,891	279,769	.....	2,034,162	4,617,349
1889.	1,522,204	716,496	259,409	363,851	.....	2,374,968	5,236,928
1890.	1,885,307	809,981	251,828	457,099	.....	2,618,660	6,022,875
1891.	1,307,176	678,927	223,312	536,607	.....	2,644,941	5,390,963
1892.	1,551,844	751,460	201,242	627,829	453,957	2,579,482	6,165,814
1893.	1,136,458	674,345	136,113	537,272	387,307	2,104,190	4,975,685
1894.	1,021,772	682,900	108,262	673,402	360,305	1,795,570	4,642,211
1895.	1,306,135	991,459	95,085	791,130	517,920	2,487,845	6,189,574
1896.	1,122,010	965,776	72,137	623,986	495,571	2,236,361	5,515,841
1897.	1,647,892	1,207,286	94,054	970,736	583,790	2,497,970	7,001,728
1898.	1,981,241	1,448,301	70,188	1,071,683	702,197	3,239,760	8,513,370
1899.	2,272,700	1,903,505	85,015	1,036,398	850,376	4,146,425	10,294,419
1900.	2,385,682	1,794,528	70,245	846,291	815,161	3,575,536	9,487,443
1901.	2,874,639	2,254,425	68,850	1,365,934	1,013,150	4,772,329	12,349,327
1902.	2,947,933	2,665,409	72,936	1,574,293	1,300,326	5,383,219	13,944,116
1903.	2,992,477	2,599,665	64,102	1,503,455	1,095,813	4,952,185	13,207,697
1904.	2,284,711	2,421,398	61,601	1,699,028	949,146	4,597,497	12,013,381
1905.	3,375,929	3,532,230	64,542	1,808,688	1,660,519	6,398,107	16,840,015
1906.	3,977,887	4,182,156	54,211	1,871,614	2,118,772	7,383,828	19,588,468
1907.	3,633,654	4,248,832	52,027	2,017,583	1,940,352	7,972,374	19,864,822
1908.	1,921,015	2,649,693	45,747	1,816,949	1,083,181	4,311,608	11,828,193
1909.	3,023,845	4,234,346	63,746	2,335,685	2,275,562	7,711,506	19,644,690
1910.	3,636,031	4,955,484	45,294	2,241,830	2,266,890	8,475,750	21,621,279
1911.	2,822,790	4,488,049	48,522	2,450,453	1,912,367	7,316,990	19,039,171
1912.	3,327,915	5,875,080	45,331	2,653,553	2,846,487	9,908,475	24,656,841
1913.	3,502,780	5,751,037	37,503	2,464,807	3,004,972	10,030,144	24,791,243
1914.	1,945,095	4,719,246	38,573	2,431,714	2,031,124	7,204,444	18,370,196
1915.	2,204,203	6,077,694	31,929	3,095,907	2,437,003	10,546,188	24,392,924
1916.	2,854,518	7,453,980	30,088	3,518,746	3,029,964	15,493,093	32,380,389
1917.	2,944,161	8,267,616	22,864	3,137,138	3,110,000	15,585,921	33,067,700
1918.	2,540,892	8,799,135	18,310	2,562,390	2,849,969	14,385,058	31,155,754
1919.	2,203,843	7,372,814	12,832	2,538,476	2,614,036	10,359,543	25,101,544
1920.	2,604,116	9,337,680	20,577	3,136,907	3,396,748	13,941,835	32,347,863
1921.	2,178,818	4,260,574	14,573	1,564,330	1,272,624	5,483,087	14,774,006
1922.	2,171,776	7,968,397	21,909	2,654,741	2,718,768	10,916,353	26,452,004
1923.	2,904,516	9,497,717	22,833	3,075,892	3,405,197	14,370,921	33,277,076

Finished Products Are Highest

PRODUCTION OF CONCRETE BARS, SHOWING IRON AND STEEL CONCRETE BARS SEPARATELY, GROSS TONS, 1910–1923.

Years.	Iron.	Steel.	Total.	Years.	Iron.	Steel.	Total.
1910	4,645	236,464	241,109	1917	1,497	469,687	471,184
1911	2,388	256,353	258,741	1918	468	344,152	344,620
1912	2,500	271,832	274,332	1919	2,295	416,726	419,021
1913	113	319,557	319,670	1920	698	571,747	572,445
1914	.....	288,471	288,471	1921	1,094	226,134	227,228
1915	.....	353,408	353,408	1922	696	575,120	575,816
1916	2,683	458,717	461,400	1923	368	680,499	680,867

PRODUCTION OF WIRE RODS, GROSS TONS, 1892–1923.

Years.	Tons.	Years.	Tons.	Years.	Tons.	Years.	Tons.
1892	627,829	1900	846,291	1908	1,816,949	1916	3,518,746
1893	537,272	1901	1,365,934	1909	2,335,685	1917	3,137,138
1894	673,402	1902	1,574,293	1910	2,241,830	1918	2,562,390
1895	791,130	1903	1,503,455	1911	2,450,453	1919	2,538,476
1896	623,986	1904	1,699,028	1912	2,653,553	1920	3,136,907
1897	970,730	1905	1,808,688	1913	2,464,807	1921	1,564,330
1898	1,071,683	1906	1,871,614	1914	2,431,714	1922	2,654,741
1899	1,036,398	1907	2,017,583	1915	3,095,907	1923	3,075,892

PRODUCTION OF MERCHANT BARS, SHOWING IRON AND STEEL MERCHANT BARS SEPARATELY, GROSS TONS, 1906–1923.

Years.	Iron.	Steel.	Total.	Years.	Iron.	Steel.	Total.
1906	1,481,348	2,510,852	3,992,200	1915	657,107	3,474,135	4,131,242
1907	1,440,356	2,530,632	3,970,988	1916	993,948	5,236,354	6,230,302
1908	685,233	1,301,405	1,986,638	1917	983,926	5,226,031	6,209,957
1909	952,230	2,311,301	3,263,531	1918	846,898	5,395,851	6,242,749
1910	1,074,163	2,711,568	3,785,731	1919	446,549	3,945,075	4,391,624
1911	835,625	2,211,737	3,047,362	1920	663,032	5,467,208	6,130,240
1912	944,790	2,752,324	3,697,114	1921	198,324	1,367,430	1,565,754
1913	1,026,632	2,930,977	3,957,609	1922	317,665	3,660,993	3,978,658
1914	563,171	1,960,460	2,523,631	1923	404,730	5,148,066	5,552,796

PRODUCTION OF SKELP, SHOWING IRON AND STEEL SKELP SEPARATELY, GROSS TONS, 1906–1923.

Years.	Iron.	Steel.	Total.	Years.	Iron.	Steel.	Total.
1906	391,517	1,137,068	1,528,585	1915	262,198	2,037,266	2,299,464
1907	444,536	1,358,091	1,802,627	1916	355,445	2,572,229	2,927,674
1908	297,049	853,534	1,150,583	1917	336,591	2,337,640	2,674,231
1909	370,151	1,663,230	2,033,381	1918	258,500	2,305,511	2,564,011
1910	350,578	1,477,616	1,828,194	1919	192,146	2,363,632	2,555,778
1911	322,397	1,658,276	1,980,673	1920	252,403	2,967,886	3,220,289
1912	327,012	2,119,804	2,446,816	1921	115,523	1,815,052	1,930,575
1913	312,746	2,189,218	2,501,964	1922	218,868	*2,653,347	*2,872,215
1914	264,340	1,718,091	1,982,431	1923	216,846	3,517,490	3,734,336

PRODUCTION OF SEAMLESS STEEL TUBES, GROSS TONS, 1914–1923.

Years.	Hot finished.	Cold drawn.	Total.	Years.	Hot finished.	Cold drawn.	Total.
1914	36,939	53,656	90,595	1919	75,864	121,505	197,369
1915	63,488	76,180	139,668	1920	132,091	159,479	291,570
1916	61,235	129,238	190,473	1921	59,663	58,221	117,884
1917	87,615	139,060	226,675	1922	120,652	137,183	257,835
1918	142,308	150,586	292,894	1923	202,669	201,114	403,783

PRODUCTION OF TINPLATES AND TERNE PLATES, 1891–1923.

Years.	Tinplates.	Terne plates.	Total pounds.
1891 (second 6 months)	368,400	1,868,343	2,236,743
1892 (calendar year)	13,921,296	28,197,896	42,119,192
1893	64,536,209	59,070,498	123,606,707
1894	102,223,407	64,120,002	166,343,409
1895	165,927,907	88,683,488	254,611,395
1896	270,151,785	89,058,013	359,209,798
1897 (first 6 months)	203,028,258	49,545,643	252,573,901
1897 (second 6 months)	.....	.....	322,205,619
1898 (calendar year)	.....	.....	732,289,600
1899	.....	.....	808,360,000
1900 (cen. year end. May 31)	707,718,239	141,285,783	*850,004,495
1901 (calendar year)	.....	.....	894,411,840
1902	.....	.....	806,400,000
1903	.....	.....	1,075,200,000
1904 (cen. year end. Dec. 31)	867,526,985	158,857,886	*1,032,940,706
1905 (calendar year)	.....	.....	1,105,440,000
1906	1,100,373,000	193,367,000	1,293,740,000
1907	996,650,000	156,447,000	1,153,097,000
1908	1,048,896,000	154,179,000	1,203,075,000
1909	1,179,858,000	190,930,000	1,370,788,000
1910	1,450,821,000	168,184,000	1,619,005,000
1911	1,597,629,000	158,441,000	1,756,070,000
1912	1,965,659,000	191,396,000	2,157,055,000
1913	1,708,186,000	136,944,000	1,845,130,000
1914	1,939,785,000	146,195,000	2,085,980,000
1915	2,201,825,054	163,470,646	2,365,295,700
1916	2,552,224,275	214,176,952	2,766,401,227
1917	3,233,314,911	153,891,653	3,387,206,564
1918	3,216,247,675	85,376,569	3,301,624,244
1919	2,407,156,757	171,859,924	2,579,016,681
1920	3,079,953,351	158,067,437	3,238,020,788
1921	1,675,320,852	103,853,961	1,779,174,813
1922	2,707,648,715	†177,235,512	†2,884,884,227
1923	3,168,263,546	207,106,248	3,375,369,794

* Includes 1,000,473 pounds in 1900 and 6,558,855 pounds in 1904 of "other sheet iron and sheet steel, tin or terne plated." † Revised.

PRODUCTION OF CAST-IRON PIPE AND FITTINGS, NET TONS.

Years.	Gas and water.*	Soil and plumbers.	Total.	Years.	Gas and water.*	Soil and plumbers.	Total.
1914	938,297	222,483	1,160,780	1919	514,664	195,417	710,081
1915	956,372	258,498	1,214,870	1920	636,862	249,653	886,515
1916	934,626	279,707	1,214,333	1921	564,138	230,092	794,230
1917	748,173	250,928	999,101	1922	926,577	356,872	1,283,449
1918	508,300	111,373	619,673	1923	1,134,059	432,828	1,566,887

* Includes culvert pipe. Manufacturers able to separate their production report 18,472 tons of culvert pipe and fittings in 1923 and 17,645 tons in 1922.

PRODUCTION OF STRUCTURAL SHAPES, GROSS TONS, 1903–1923.

Years.	Tons.	Years.	Tons.	Years.	Tons.
1903	1,095,813	1910	2,266,890	1917	3,110,000
1904	949,146	1911	1,912,367	1918	2,849,969
1905	1,660,519	1912	2,846,487	1919	2,614,036
1906	2,118,772	1913	3,004,972	1920	3,306,748
1907	1,940,352	1914	2,031,124	1921	1,272,624
1908	1,083,181	1915	2,437,003	1922	2,718,768
1909	2,275,562	1916	3,029,964	1923	3,405,197

PRODUCTION OF PLATES AND SHEETS BY KINDS, 1922–1923.

Kinds.	1922—Gross tons.			1923—Gross tons.		
	Iron.	Steel.	Total.	Iron.	Steel.	Total.
Universal plates*	3,270	1,245,143	1,248,413	3,549	1,300,678	1,304,227
Sheared plates—						
Rolled on single stands	169	1,711,743	1,711,912	241	2,341,186	2,341,427
Roughed and fin. on sep. stands	.....	459,595	459,595	.....	523,091	523,091
Black sheets rolled on sheet or jobbing mills	37,406	2,879,830	2,917,236	1,750	3,501,321	3,503,071
Black plates, including black plates for tinning and black plate specialties rolled on tin mills	.....	1,631,241	1,631,241	477	1,825,424	1,825,901
Total	40,845	7,927,552	7,968,397	6,017	9,491,700	9,497,717

*Include flats and bars over 6 inches wide.

PRODUCTION OF WROUGHT PIPE AND BOILER TUBES, SHOWING IRON AND STEEL SEPARATELY, 1922–1923.

Kinds of pipe.	1922—Gross tons.			1923—Gross tons.		
	Iron.	Steel.	Total.	Iron.	Steel.	Total.
Black, standard	87,154	973,906	1,061,060	83,554	1,293,793	1,377,347
Galvanized	30,852	359,288	390,140	34,600	423,315	457,915
Oil country goods	33,223	1,106,611	1,139,834	34,130	1,324,759	1,358,889
O. D. and misc	62	66,713	66,775	.....	65,831	65,831
Boiler tubes	19,944	54,483	74,427	25,572	65,469	91,041
Total	171,235	2,561,001	2,732,236	177,856	3,173,167	3,351,023

PRODUCTION OF MISCELLANEOUS ROLLED PRODUCTS, GROSS TONS, 1919–1923.

Products.	1919.	1920.	1921.	1922.	1923.
Hoops	233,336	333,440	166,961	222,139	220,835
Bands and cotton-ties	352,172	388,862	111,426	271,101	348,480
Long angle splice bars, fish-plate bars, tie-plate bars, etc.	434,008	575,830	423,820	605,688	749,824
Rolled sheet piling	17,811	20,716	18,165	13,220	36,716
Railroad ties	16,645	26,310	10,361	14,811	20,167
Rolled forging blooms, forging billets, etc.	*359,562	*447,334	*108,456	*326,303	448,870
Blooms, billets, sheet bars, tinplate bars, etc., for export	92,143	136,457	7,506	11,299	781
Spike and chain rods, bolt and nut rods, horseshoe bars, hot rolled strips, shafting, tires, etc.	1,487,423	†2,089,912	†912,835	††2,025,103	†2,577,249
Total	2,993,120	4,018,861	1,750,530	‡3,489,664	4,402,922

* Exports included.

PRODUCTION OF WIRE NAILS IN 100-LB. KEGS, 1892–1923.

Years.	Production.	Exports.	Consumption.	Years.	Production.	Exports.	Consumption.
1892	4,719,524	21,387	4,698,137	1908	10,662,972	593,819	10,069,153
1893	5,095,945	27,451	5,068,494	1909	13,916,053	686,687	13,229,366
1894	5,681,801	38,920	5,642,881	1910	12,704,902	960,295	11,744,607
1895	5,841,403	53,012	5,788,391	1911	13,487,778	1,200,957	12,236,821
1896	4,719,860	95,638	4,624,222	1912	14,659,700	1,530,353	13,129,347
1897	8,997,245	129,767	8,867,478	1913	13,559,727	977,477	12,582,250
1898	7,418,475	307,190	7,111,285	1914	13,132,814	809,167	12,323,647
1899	7,618,130	750,781	6,867,349	1915	14,583,026	2,051,475	12,531,551
1900	7,233,979	613,858	6,620,121	1916	17,147,665	3,363,876	13,783,789
1901	9,803,822	420,506	9,383,316	1917	17,040,666	2,574,054	14,466,612
1902	10,982,246	595,391	10,386,855	1918	12,279,800	1,763,460	10,516,340
1903	9,631,661	704,546	8,927,115	1919	13,094,221	2,011,045	11,083,176
1904	11,926,661	734,554	11,192,107	1920	16,449,506	2,087,195	14,362,311
1905	10,854,892	799,734	10,055,158	1921	11,889,412	629,650	11,259,762
1906	11,486,647	1,035,705	10,450,942	1922	15,053,330	1,232,467	13,820,863
1907	11,731,044	945,035	10,786,009	1923	17,672,582	1,029,971	16,642,611

Machinery Dullness Continues

General Buying Movement Still Absent—Inquiries Show Improvement in a Few Districts —Chicago Vocational Schools To Take Large List of Tools—Industrial Buying Quieter—Used Equipment Demand Slumps—Crane Interest Lags

DULLNESS continues unmitigated in the machinery market. Occasionally an inquiry of size will appear, or a large sale be closed, but a general buying movement decidedly is absent. Inquiries in a few sections of the country show a tendency toward betterment but manufacturers and dealers generally expect little improvement soon.

One of the largest inquiries to be brought out recently has been placed in the market by the school board at Chicago and involves several hundred machine tools and miscellaneous pieces of equipment. Industrial buying is quieter, although the General Electric Co. has added to its recent inquiry for its service station in Detroit.

Although automotive buying is considerably lighter than in the first two months of the year, it still aggregates a good percentage of the going business. One manufacturer reports six out of seven recent orders as coming from the Detroit district. An attempt to cultivate new outlets for machine tools is being undertaken by some manufacturers and dealers and the results are encouraging.

Used equipment buying also has slumped off, although sales generally are as good or better than those of new machinery. A wide range of prices on used tools, with weakness the rule, is causing some manufacturers to readjust their new tool price lists to stimulate that class of buying.

Crane interest still lags. Orders are being entered on manufacturers' books at far below normal rate. The overhead crane market is more active than that of the locomotive crane. Inquiries continue few and scattered, with a few large industrial interests expanding their facilities.

Automotive Field Still Helps To Swell Sales

NEW YORK, June 10.—Another dull week marked trading in the eastern machine tool market. Railroad demand is featureless and industrial activity is confined to small orders. Included in recent orders placed by the Otis Elevator Co., are a gate shear and gear cutter for its Harrison, N. J. plant. Other orders call for a 400-ton wheel press for the Southern Wheel Co., Birmingham, and a 600-pound steam hammer for the North Carolina State Highway commission.

Sellers generally look for little improvements over the next month to six weeks. With the exception of the Norfolk & Western list and possible further substantial buying by the General Electric Co. for its West Philadelphia plant, little business of importance appears contemplated.

Formal orders against the large contract noted in a recent issue as placed by the Union Pacific railroad, are now coming through. One seller has received orders for an axle lathe, combination journal turning and axle lathe; 42-inch engine lathe, 36-inch planer, and 10-inch double cutting off and centering machine. This interest has also received an order from the St. Louis & San Francisco railroad for a combination journal turning and axle lathe.

Crane demand continues far from brisk, with orders coming through below the normal rate. This applies particularly to locomotive cranes. The overhead crane market, is featured by three or four substantial inquiries.

Large School Board List Out

CHICAGO, June 10.—The largest inquiry before Chicago district sellers of machine tools and equipment is that of the board of education, for more than 200 items for the machine, electrical, wood and sheet metal shops of the Crane and Senn schools. The Atchison, Topeka & Santa Fe railroad has placed four 96-inch vertical boring mills and is understood planning to close soon on the remainder of its list for its San Bernardino, Cal., shops. Machinery houses as a whole did considerably less business in May than in April, although the month's total in many cases exceeded expectations. In addition to asking bids for converting eight tools, including a large planer, to motor drive, the board of education is inquiring for the tools noted in the accompanying list.

Inquiry Somewhat Improved

BOSTON, June 10.—Sales last week have followed along the quiet lines which have been in effect for the past few months. Inquiry points to better buying. The government is asking for bids on three 18-inch lathes for use on submarines at Portsmouth, N. H. The Boston & Maine railroad in inquiring for prices against an informal list of tools. Several lists are on the point of closing for public schools throughout the district. Bids were opened recently covering five lathes, a milling machine, a sensitive drill and some other tools for the Winship school, Brighton, Mass., against this, the low bid was approximately $3800 and the high bid $5200 which indicates the wide range in present prices. One manufacturer of pipe cutting machines announces an advance in price to take effect July 1. Other than this prices are firm.

Activity Continues Restricted

CLEVELAND, June 10.—Activity in the machine tool market continues restricted to occasional sales of one and two large machines, although small equipment is moving at a fairly good rate. General Electric Co. has added to its list for its service station in Detroit. A Detroit automotive manufacturer closed on four or five machines with a local manufacturer. Another machine tool builder stated that six out of seven recent contracts have come from the automotive industries in the Detroit district. Little railroad buying is evident here. Although vocational school in other cities are a factor in present machinery buying local needs are restricted mainly to other than metalworking lines. Collinwood school has a list in the market for 14 woodworking machines.

Restricted Buying Pinches Sellers

PITTSBURGH, June 10.—Machine tool and equipment sellers are commencing to feel the pinch of restricted buying policies. Purchases only are

Chicago Board of Education List of Metalworking Tools

Senn School Machine Shop

Eleven quick change gear lathes, 12 inches x 5 feet, with 60-cycle, alternating current motor, with chucks.

Crane School Machine Shop

Fifty-one quick change gear lathes, 14 inches x 5 feet, with 115 volt direct current motors, variable speed.

One lathe, 16 inches x 6 feet, same as above.

Four lathes, 14 inches x 5 feet, same as above, but with draw-in chucks and taper attachment.

Two lathes, 14 inches x 6 feet, same as above but with taper attachment and two chucks.

Four saws, with direct current motor.

Six high speed motor driven ball bearing drills with 110 volt direct current motor.

One double disc grinder, with 115 volt direct current motor, for 12-inch discs.

Three 14-inch plain crank shapers with 115 volt direct current motors.

Four No. 2 universal milling machines with 115 volt direct current motors.

Four 11-inch x 4-foot cataract quick change precision lathes with 110 volt direct current motors.

Six 20-inch x 1½-inch ransom or equivalent wet tool grinders with 115 volt direct current motors.

Two 24-inch sliding head upright drills with 115 volt direct current motors.

One ½-inch geometric motor driven threading machine.

One ¾-inch geometric threading machine with 115 volt direct current motor.

Four 3-spindle high speed ball bearing drills with 12-inch swing and 115 volt direct current motors.

Two combination furnaces motor driven.

Two high speed furnaces with one positive pressure blower.

Three or equivalent universal cutter grinders with 115 volt direct current motors.

Four single spindle centering machines with 115 volt direct current motor, having three-jaw chuck and drill socket No. 31.

Thirty cast iron vise stands 33 inches high.

Seven 11-inch x 4-foot speed lathes with 110 volt direct current motor.

Crane School Electrical Shop

Two 9-inch x 4-foot quick change gear screw cutting bench lathes with 110 volt direct current motors.

Three No. 2 3-spindle bench drills with 110 volt direct current motors with ⅜-inch elco chucks.

One die filer with 110 volt direct current motor.

One filing and sawing machine with ¼-horsepower direct current motor.

One bench milling machine with ¼-horsepower 110 volt direct current motor, with vertical and slotting attachment, with draw in attachment, tilting index center and four arbors.

One 11-inch x 4-foot quick change precision gear lathe with 110 volt direct current motor.

Two bench grinders with direct current motors, with 26 x ¾-inch wheels; 1 machine of the same as above except of the floor type, with 8 x 1-inch wheels.

Three 1-spindle ball bearing drills with constant speed motor.

Crane School Sheet Metal Shop

Two revolving machines, two barfolding machines, two forming machines, one grooving machine, two wire wheels, one squaring shear, one cornice breaker, twelve stakeholders with six sets of stakes, one electrical grinder, four small burning machines, four small turning machines, four small wiring machines, two beading machines, two can top folders, four blowhorn stakes, three beak-horn stakes, three conductors stakes, three candle mold stakes, three needle stakes, three hatchet stakes, three bottom stakes, two hollow mandrell stakes, 12 bench plates, 10 vises and 15 noiseless gas furnaces.

Crane School Wood Shop

One 24-inch single surface planer, direct current motor, with four power driven rollers, section feed roller and braker and one set of extra knives.

One circular saw bench with one pair of extra saws.

One hand jointer with a 12-inch head and direct current motor.

One band saw 30 inches, ball bearing, with direct current motor.

made when equipment is absolutely needed. Orders are confined to single items such as a 4-foot radial drill, an 18-inch motor-driven lathe completely equipped, and similar individual installations. An inquiry is out here for 32 machines including general machine shop equipment, presses, lathes, milling machines, tin shop tools, etc., and originates with a manufacturer contemplating a new plant for which the excavation has not been started. One inquiry current calls for an 18-inch motor-driven lathe and a radial drill. Another specifies a 100,000-pound forging machine and some power plant equipment. One dealer reports that he has worked upon a complete machine shop installation involving several items which probably will be closed this week. The Westinghouse Electric & Mfg. Co. has wound up its second quarter buying.

The Carrick, Pa. high school list is due for closing this week, and action on other school lists is scheduled to be taken shortly. Crane inquiries are growing scarcer although a few large ones still are pending. Crane orders are few and far between.

Inquiries Fall Decidedly

SEATTLE Wash., June 7.—Machine tool and equipment dealers in the Northwest all report a de-

Crane Awards and Inquiries of the Week

Orders Placed

Six 3-ton handpower traveling cranes and two 3-ton jib cranes for the Putnam Foundry & Machine Co., Putnam, Conn., to the Whiting Corp.

Four 10-ton trolleys for Manning, Maxwell & Moore, New York, to the Chisholm-Moore Mfg. Co.

Three 25-ton overhead traveling cranes for power houses for Pacific Gas & Electric Co., San Francisco to Cyclops Iron Works.

Two 3-ton traveling overhead cranes for the Bryant Lumber Co., Seattle, to Ederer Engineering Co.

Two 10-ton locomotive creeper type cranes for Santa Clara Gravel Co., Santa Clara, Cal., to Northwest Engineering Co.

Single Installations

15-ton handpower crane for Potlach Lumber Co., Potlach, Idaho, to Cyclops Iron Works.

20-ton locomotive crane for Blodell-Donovan Lumber Co., Bellingham, Wash., to Ohio Locomotive Crane Co.

15-ton locomotive crane for Washington Pulp & Paper Co., Port Angeles, Wash., to Ohio Locomotive Crane Co.

5-ton hammerhead crane for the Elliott Bay Mill Co., Seattle, to Ederer Engineering Co.

100-ton overhead traveling crane, 63-foot span, for Los Angeles Gas & Electric Co., Los Angeles, to Whiting Corp.

10-ton locomotive creeper type crane for Morgan Fisher, Amboy, Cal., to Northwest Engineering Co.

¾-yard gasoline operated shovel for A. J. Callahan, Los Angeles, to Northwest Engineering Co.

¾-yard gasoline operated shovel for Kisselburg-Schmidt-Hitchcock, Phoenix, Ariz., to Northwest Engineering Co.

¾-yard gasoline operated shovel for California highway commission, Sacramento, Cal., to Northwest Engineering Co.

¾-yard gasoline operated shovel for J. P. Holland, San Francisco, to Northwest Engineering Co.

20-ton locomotive crane for California Gravel & Rock Co., Pleasanton, Cal., to Brown Hoisting Machinery Co.

20-ton locomotive crane for Service Rock Co., Fresno, Cal., to Brown Hoisting Machinery Co.

35-ton locomotive crane for Sudney, Jonkens Co., Vancouver, B. C., to Browning Co.

15-ton four-motor crane, 57-foot span, for the Bangor & Aroostook railroad, to an eastern builder.

35-ton used locomotive crane, of the McMyler-Interstate Co., 50-foot boom, for the Sieberling Refining Co., Sieberling, Tenn., to Philip T. King, 30 Church street, New York.

12-ton crawler for the Standard Oil Co. of New Jersey, for Baltimore, to the Orton & Steinbrenner Co.

10-ton electric traveling crane for the Fort Wayne, Ind., plant of the General Electric Co., to the Whiting Corp.; this contract was listed in last week's issue as reported placed.

100-ton electric crane for a power plant at Utica, N. Y., reported as informally placed by Thomas E. Murray, 55 Duane street, New York.

5-ton, 3-motor crane with 52-foot 6-inch span for the Westinghouse Electric & Mfg. Co., Attica, N. Y., through the Pittsburgh office of the Milwaukee Electric Crane & Mfg. Co.

10-ton locomotive trolley crane for the A. G. Lobey Co., Elizabeth, Pa., to the McMyler-Interstate Co.

Orders Pending

Nine or 10 cranes instead of 19 originally asked for the Gary plant of the National Tube Co.; action still deferred.

Five small cranes and five hoists for the Westinghouse Airbrake Co., Wilmerding, Pa., brass foundry addition; action expected soon.

Two each 40-ton and 10-ton cranes for the machine shop of the Carnegie Steel Co., Homestead, Pa.; due for closing this week.

Two 10-ton gantry cranes, 85-foot span, for the Pennsylvania railroad; order to be placed shortly through Philadelphia offices.

5 to 10-ton overhead traveling crane, 40 to 50-foot span, for Robert P. Kehoe, 7 East Forty-second street, New York; pending.

20-ton locomotive crane for the Standard Oil Co. of New York, 26 Broadway, New York, tentative figures asked.

cided falling off in inquiries and sales during the past 30 days. As yet little or no improvement is noted in the lumber and logging industry in this section, operations having been curtailed because of overproduction. Until these two industries are again working on a full-time basis, the trade does not expect much in the way of new inquiries or sales.

Resale equipment which has found its way into the market with the sale of one of the shipbuilding plants, has also had a decided effect on the market here for new tools and buyers are favoring this used equipment in preference to new material. Installation of tools is confined, with hardly an exception, to single tools, no large sales having been reported.

The quiet condition of the lumber and logging industry is reflected is lessened demand for cranes and while a number of cranes have been placed during the past four weeks, only a few inquiries are before the trade at this moment and the outlook for the next 30 days is far from encouraging.

Used Equipment Demand Better

CINCINNATI, June 10.—Orders for machine tools continue at about the same rate as last week. Sales are confined still to a small number of tools, large orders being the exception. Last week the American Rolling Mill Co., purchased a railroad scale for installation at its Middletown, O., plant from Fairbanks Morse & Co. Inquiries have slackened considerably in the past few days, especially for new equipment. Inquiries for used machinery is better than for several weeks. Machine tool builders are of the opinion there will be no perceptible improvement in the market until after the political conventions. A majority of the plants in this district are working part time, or on a full time basis with greatly reduced forces. No disposition to alter prices has appeared as yet. In the trade it is felt that something may be necessary to stimulate business after the summer season and it may be advisable to reduce prices in order to set things in motion. Railroad buying in this district is at its lowest level in more than a year. Automobile manufacturers are buying only in a limited way. The plant at Norwood O., of the Cheverolet Co., has suspended operations for 90 days.

Recent Industrial Business Changes

J H. WILLIAMS & CO., Buffalo, N. Y., manufacturers of drop forgings and drop forged tools, have completed the transfer of their manufacturing operations from plants in Brooklyn, N. Y. and Chicago, to the home offices. After July 1 district sales offices and warehouses will be maintained at 75 Spring street, New York, and 117 North Jefferson street, Chicago, E. J. Wilcox will be sales manager of stock and P. Rigby of special products for the eastern territory with headquarters in New York, and N. P. Linde will be in charge of stock and A. C. Nuth of special products in the western district, with offices in Chicago.

* * *

Fulton Machine Tool Co., Chicago, has been dissolved.

* * *

The Chicago Hardware Mfg. Co., Chicago has been dissolved.

* * *

J. P. Ward Foundry, Elmira, N. Y., plans moving its plant equipment to Blossburg, Pa.

* * *

B. Nicoll & Co. have moved their headquarters to 294 Madison avenue, New York.

* * *

The Sulfex Corp has moved to larger quarters at 81 New street, New York. Frederick Conlin is general manager.

* * *

Offices and warehouse of the Newburgh Steel Co., recently were moved from 3361 East Eightieth street to 6318 Kinsman road, Cleveland.

* * *

The Chemical Treatment Co. has established its headquarters in larger offices at Room 2511, 81 New street, New York.

* * *

The Milton Mfg. Co., Milton, Pa. manufacturer of steel and iron bars, nuts, bolts, etc., has established an office at 1428 Oliver building, Pittsburgh, in charge of O. G. Carlson.

* * *

The Illinois Clay Products Co. has moved its main offices from Oglesby, Ill., to the Barber building Joliet, Ill. Otis L. Jones is manager of the company.

* * *

S. Okanishi, the American manager of the Shima Trading Co., has been appointed the European manager of the same organization with headquarters in London. Offices of the company have been moved from 42 to 150 Broadway, New York.

* * *

Chicago Pneumatic Tool Co., Chicago Pneumatic building, New York, has removed its Los Angeles branch sales and service headquarters from 307 East Third street, to its new building at 655 Santa Fe avenue. The Los Angeles branch serves southern and lower California, southeastern Nevada, Arizona and Sonora, Mexico.

* * *

The Bertolette Machine Tool Co., Inc., which purchased the entire business of the New York Machinery exchange, is moving its offices and warehouses to 220 Culver avenue, Jersey City, N. J., from 357 West Side avenue, that city. Its former warehouse at 327 West Side avenue is for sale. A total of over 600 machine tools and machines now are in stock.

* * *

Plant and equipment of the Mamolith Carbon Paint Co. Cincinnati, manufacturer of paints for railroads, marine and structural work has been sold to the R. F. Johnston Paint Co., that city. The Mamolith company was founded 20 years ago by the late A. B. Burtis. The R. F. Johnston Paint Co., will continue the operation of the plant as a subsidiary.

* * *

Fuller Bros., steel merchants, who were established in 1846 at Greenwich and Liberty streets, New York, have after a period of 78 years, abandoned that location in the heart of the business district of New York and have established a larger warehouse at Boone and Inlay streets, Brooklyn. The office of the company will in the future be at 347 Madison avenue, New York.

New Construction and Enterprise

BIRMINGHAM, ALA.—The Daniel Ornamental Iron & Wire Corp., recently was organized with $36,000 capital, to manufacture metal products, by William H. Daniel, president and treasurer; L. E. Waddell, vice president and C. N. Orman, secretary. The company will take over the business formerly run by Mr. Daniel as the Daniel Machine Co., 725-31 Third avenue.

HOT SPRINGS, ARK,—American Foundry Co. has been incorporated for $10,000 by W. F., C. H. and T. M. Fullington.

BERKELEY, CAL.—The Berkeley Steel Construction Co. has started constructing foundry at Second and Camilla streets, for machine shop and gray iron castings. T. S. Neilson is president and general manager.

EL CENTRO, CAL.—Whiting-Mead Co., Los Angeles, manufacturer and jobber of building materials, will construct warehouse here.

EMERYVILLE, CAL.—Pacific Gas & Electric Co. has purchased a 12.7-acre site for construction of a $600,000 warehouse.

EMERYVILLE, CAL.—The Pacific Malleable Castings Co. has started constructing foundry near the Elmhurst station. Plant will contain about 55,000 square feet of floor space.

OAKLAND, CAL.—Aluminum Cooking Utensil Co., Forty-sixth and Linden streets, has awarded K. E. Parker Co., 519 California street, San Francisco, general contract for plant. Engineering department of the Aluminum company, Philadelphia, is preparing plans.

SAN FRANCISCO—Kleiber & Co., Inc., 1480 Folsom street, automobile builder, has let general contract for 2-story building, to Austin Co. of California, Santa Fe building.

BRIDGEPORT, CONN.—The Bridgeport Safety Emery Wheel Co. has awarded contract to W. R. Muirhead & Son, for 1-story plant, 90 x 240 feet, at Stratford, Conn. The Bridgeport company manufactures abrasive materials.

FAIRFIELD, CONN.—DeMattia Wire Works, Inc., has been incorporated with $50,000 capital by Constantino DeMattia and others of Fairfield.

NEW HAVEN, CONN.—Plans are being prepared by the Electro Thermo Machinery Co., for the erection of a 1-story building, 88 x 182 feet.

PERRY, FLA.—The Perry Foundry & Machine Co. has started constructing addition to foundry. H. T. Wilkes is head of the company.

TARPON SPRINGS, FLA.—The Marine Engine Works & Shipbuilding Corp. has been incorporated with $25,000 capital to build engines for marine work. R. Kaminis is president of the company, Minas F. Saris, vice president, C. G. Tulmaris, secretary and A. Kaminis, treasurer and general manager.

ATLANTA, GA.—The Woolstock Co. has taken out building permits for constructing foundry addition.

CHICAGO—Acme Adding & Circulating Co., 1126 West Thirty-fifth street, are having plans prepared by Ronneberg & Pierce, 10 South La Salle street, for 2-story addition.

CHICAGO—Joseph Fabian and P. F. Devany, have opened a brass and aluminum foundry under the name of Hunter & Co., 1907 Indiana avenue. Equipment recently was enlarged.

CHICAGO—The Melby Mfg. Co., 7158 West Grand avenue, has been incorporated for $5000 to manufacture and sell equipment and oil burners, by Frances Smith, John E. Erickson and August Wicklund.

CHICAGO—The A. J. Lindemann & Hoverson Co., Milwaukee, stove manufacturer, has awarded the Great Lakes Construction Co., 308 South Wabash avenue, a contract for 6-story reinforced concrete plant.

CHICAGO—The Red Cab & Motor Co. plans 1 and 2-story brick garage and repair shop at Elston near Crawford street. Charles F. Heinig Co., 53 West Jackson boulevard, is in charge.

CHICAGO—S. E. Fast Corp., 2536 Lincoln street, has been incorporated for $50,000 to manufacture and deal in metal novelties and appliances, by William H. Straube, Albert D. Tibbals and Ernest C. Schwarz.

CHICAGO—Cities Automobile Indexing Co., 174 East Chestnut street, has been incorporated for $100,000 to manufacture and sell containers for holding license plates, tags, numbers, etc., by Guy W. French, L. T. Thorn and Willis Melville.

CHICAGO—The Idol Track Liner Co., 723 South Wells street, has been incorporated for $5000 to manufacture and sell railway labor saving devices, tools, and equipment, by N. Sternberg, I. Hackmann and Joseph J. Franzen.

CHICAGO—Bates Valve Bag Co., 7310 South Chicago avenue, has let contracts for 2-story, 120 x 200-foot brick and reinforced concrete plant. J. L. McConnell, 111 West Jackson boulevard is architect and engineer. A. M. Bates is president of the company.

CHICAGO—Electric Storage Battery Co., Philadelphia, has awarded J. W. Snyder Co., 116 South Michigan avenue, contract for constructing first unit of plant at Western boulevard and Forty-seventh street. D. H. Burnham & Co., 1900 Burnham building, are architects.

GRANITE CITY, ILL.—National Lead Co., plans 3-story, 81 x 185-foot steel package warehouse. General contract has been let to Fruin & Colnon Construction Co., Merchants Laclede building, St. Louis. George C. Carpenter, International Life building, St. Louis, is manager of the National Lead Co. *Noted May* 29.

MENDOTA, Il.—Mendota Mfg. & Transfer Co., will be in the market soon for millers and lathes for 40 x 100-foot machine shop under construction. J. Schalb is general manager. *Noted June* 5.

SPRINGFIELD, ILL.—The Bruce Co., 206 East Monroe street, has been incorporated for $5000 to manufacture and deal in sewing machines, motors, apparatus, musical instruments, trucks, machinery, etc., by Anna McCann, H. T. Smith and J. B. Bliss.

WAUKEGAN, ILL.—Wilson & Ohm, Inc., 401 South Sheridan road, has been incorporated for $100,000 to repair and store and deal in automobiles, tractors, trucks, etc., by Garrett Wilson, Carl Ohm, and Walter C. Caede.

MICHIGAN CITY, IND.—The Stefco Steel Co. has been organized with 20,000 shares no par value stock to manufacture materials necessary for steel construction, by Charles E. McKeen, Terre Haute, Charles G. Schuster, Muncie, and Walter K. Greenbaum.

DAVENPORT, IA.—French & Hecht, machinists and founders, have awarded contract to Rock Island Bridge & Iron Works, Rock Island, Ill., for addition to plant. Frank D. Chase, Inc., 712 North Michigan avenue, Chicargo, is architect. *Noted May* 15.

DAVENPORT, IA.—Bettendorf Co., operator of a steel foundry, plans constructing electric power house and installing equipment, complete program to involve expenditure of about $200,000. J. J. Bettendorf is president. Power house will be constructed between car shops and foundry. Allis-Chalmers Co., Milwaukee, will furnish some of the equipment.

STANFORD, KY.—Phillips Machine Co. has been incorporated with $10,000 capital by James J. Phillips, Henry D. Phillips and Matt R. Hargan.

YORK, ME.—The York Mfg. Co. has retained Lockwood, Greene & Co., Boston, engineers, to prepare plans for extension to warehouse facilities.

BALTIMORE—The Autogenous Welding & Machine Co., 1217 Maryland avenue, plans 1-story, 84 x 97-foot brick, plant addition at 1213 Maryland avenue. J. Kernan is president and treasurer. Pamfillis Construction Co., 307 North Greene street, is general contractor.

BOSTON—The Automatic Bobbin Cleaner Co. has been organized with 1000 shares no par value stock by Robert K. Henderson, John D. McNeish and Albert M. Lyon.

NEWTON, MASS.—The Newton Pressed Steel & Mfg. Co. has been incorporated for $10,000 by Rocco Sementilli, Amsto Pescosclido and Cecidio Antonellis.

DETROIT—United States Radiator Co., Broadway and Grand River, has let contracts to Concrete Steel Co. for constructing plant addition.

DETROIT—Standard Oil Co., 1011 Fourth street, E. P. Galbreath, manager, has let contract to Bryant & Detwiler, 2336 Dime Bank building, for 2-story, 103 x 235-foot reinforced concrete warehouse.

DETROIT—Peerless Portland Cement Co., 2408 First National Bank building, is taking bids for 1-story, 49 x 181-foot brick and steel machine shop. Albert Kahn, 1000 Marquette building, is architect. William H. Hatch is president of the Peerless company.

IRON MOUNTAIN, MICH.—Michigan Iron, Land & Lumber Co. has let contract to Worden-Allen Co., Milwaukee, for plant.

WILLMAR, MINN.—General contract has been let to Standard Construction Co., Plymouth building, Minneapolis, for $175,000 power plant. Hans Gunderson is clerk. Toltz, King & Day, 1410 Pioneer building, St. Paul, are architects. *Noted May* 22.

JACKSON, MISS.—The Launchy Foundry & Machine Co. has increased its capital stock from $50,000 to $75,000 and additional facilities will be provided for in expansion program.

VICKSBURG, MISS.—Fire recently badly damaged the machine shop, storeroom, and other departments of the engineering corps of the war department and the Mississippi River commission.

OMAHA, NEBR.—W. A. Haberstroh & Sons, 1402 Military avenue, operator of furnace, sheet metal and tin works, is constructing a 2-story plant.

ELIZABETHPORT, N. J.—Central Railroad of New Jersey is taking bids on construction of several small shop buildings here.

JERSEY CITY, N. J.—A $125,000 addition will be made by the Public Service Electric Corp. at its power plant on Duffield avenue.

NEWARK, N. J.—Ideal Metal Products Co., Inc., 763 Broad street, has been incorporated for $125,000 to manufacture metal products.

WEEHAWKEN, N. J.—Gilroy Steel Co.,

Warehouse Steel Prices

Quotations at Cents Per Pound at Leading Market Centers

Boston	3.49c to 3.515c
Buffalo	3.55c
Chicago	3.20c
Cincinnati	3.40c to 3.50c
Cleveland	3.36c
Detroit	3.35c
Los Angeles	3.75c
New York	3.44c to 3.49c
Philadelphia	3.00c to 3.25c
Pittsburgh	3.15c
San Francisco	3.75c
Seattle	3.50c
St. Louis	3.35c
St. Paul	3.45c

IRON BARS

Boston	3.49c to 3.515c
Buffalo	3.50c
Chicago	3.20c
Cincinnati	3.40c to 3.50c
Detroit	3.35c
New York	3.49c
Philadelphia	3.00c to 3.25c
St. Louis	3.35c

REINFORCING BARS

Boston	2.75c to 2.90c
Chicago	2.45c
Cincinnati	3.40c to 3.50c
Cleveland	2.71c to 3.36c
Los Angeles, C. L.	3.60c
Los Angeles, L. C. L.	4.00c
New York	3.00c
Philadelphia	2.90c to 3.00c
Pittsburgh	2.40c
San Francisco, C. L.	3.65c
San Francisco, L. C. L.	4.00c
Seattle	3.50c

SHAPES, STRUCTURAL

Boston	3.59c to 3.615c
Buffalo	3.65c
Chicago	3.30c
Cincinnati	3.50c to 3.60c
Cleveland	3.46c
Detroit	3.45c
Los Angeles	3.85c
New York	3.54c to 3.59c
Philadelphia	3.00c to 3.25c
Pittsburgh	3.25c
San Francisco	3.60c
Seattle (large shapes)	3.60c
St. Louis	3.45c
St. Paul	3.55c

PLATES

Boston	3.59c to 3.615c
Buffalo	3.65c
Chicago	3.30c
Cincinnati	3.50c to 3.60c
Cleveland	3.46c
Detroit	3.45c
Detroit, 3/16-inch	3.45c
Los Angeles	4.00c
New York	3.54c to 3.59c
Philadelphia	3.00c to 3.25c
Philadelphia, 3/16-inch	3.22c to 3.47c
Pittsburgh	3.25c
San Francisco	3.75c
Seattle	3.50c
St. Louis	3.45c
St. Paul	3.55c

NO. 10 BLUE ANNEALED SHEETS

Boston, 3/16-inch	4.34c to 4.515c
Buffalo	4.30c
Chicago	4.00c
Cincinnati	4.10c
Cleveland	3.65c to 4.06c
Detroit	4.15c
Los Angeles	5.00c
New York	4.14c
Philadelphia	3.90c
San Francisco	5.00c
Seattle	4.75c
St. Louis	4.10c
St. Paul	4.25c

NO. 28 BLACK SHEETS

Boston	4.85c to 5.00c
Buffalo	5.00c
Chicago	4.70c
Cincinnati	4.80c
Cleveland	4.55c to 4.75c
Detroit	4.85c
Los Angeles	6.20c
New York	4.85c
Philadelphia	5.00c
San Francisco	5.80c
Seattle	5.75c
St. Louis	5.00c
St. Paul	4.95c

NO. 28 GALVANIZED SHEETS

Boston	5.85c to 6.00c
Buffalo	6.10c
Chicago	5.60c
Cincinnati	5.95c
Cleveland	5.60c to 5.80c
Detroit	6.00c
Los Angeles	7.00c
New York	5.85c
Philadelphia	6.00c
San Francisco	6.50c
Seattle	6.75c
St. Louis	6.00c
St. Paul	5.75c to 6.00c

BANDS

Boston	4.315c
Buffalo	4.35c
Chicago	3.95c
Cincinnati	4.25c
Cleveland	4.16c
Detroit	4.10c
Los Angeles	4.65c
New York	4.09c
Philadelphia	3.85c to 4.15c
Pittsburgh	3.95c
San Francisco	4.50c
Seattle	4.50c
St. Paul	4.20c

HOOPS

Boston	5.19c to 5.80c
Buffalo	4.65c
Chicago	4.55c
Cleveland	4.16c
Detroit	4.95c
New York	4.59c
Philadelphia, 1 inch and wider	
20 gage and heavier	4.20c to 4.27c
Pittsburgh	3.95c
Seattle	5.50c
St. Paul	4.80c

COLD FINISHED STEEL

Boston (rounds)	4.35c
Boston (shapes)	4.85c
Buffalo (rounds)	4.45c
Buffalo (shapes)	4.95c
Chicago (shapes)	4.50c
Chicago (rounds)	4.00c
Cleveland (rounds)	4.10c
Cincinnati (rounds)	4.25c
Cincinnati (shapes)	4.75c
Cleveland (rounds)	4.10c
Cleveland (shapes)	4.60c
Detroit (rounds)	4.30c
Detroit shapes)	4.80c
Los Angeles (rounds)	5.75c
New York (rounds)	4.40c
New York (shapes)	4.90c
Philadelphia (rounds)	4.00c to 4.15c
Philadelphia (shapes)	4.50c to 4.65c
Pittsburgh (rounds)	4.05c
Pittsburgh (sq. hex and flats)	4.55c
San Francisco (rounds)	5.50c
Seattle (rounds)	5.00c
St. Paul (rounds)	4.25c

WELDED PIPE

Discounts from warehouse, New York City
Standard Steel Pipe
(Subject to Shading)

	Black	Galvanized
¼-⅜-inch butt	—31	+ 2
½-inch butt	—41	—24
¾-inch butt	—46	—32
1/3-inch butt	—48	—34
3½-inch lap	—44	—30
7-8-inch lap	—41	—11
9-10-inch lap	—35	— 8
11-12-inch lap	—34	— 6

Wrought Iron Pipe

	Black	Galvanized
¼-⅜-inch butt	+44	+78
½-inch butt	— 4	+19
¾-inch butt	—11	+ 9
1-1½-inch butt	—14	+ 6
2-inch lap	— 5	+14
3-6-inch lap	—11	+ 6
7-12-inch lap	— 3	+16

Inc., 1955 Park avenue, has been incorporated for $125,000 to manufacture and sell steel products, by Daniel A. Haggerty, J. Harry O'Brien and Louis F. Beachner.

BROOKLYN, N. Y.—G. K. Iron & Metals Corp. has been incorporated for $20,000 to deal in scrap metals, by D. J. Brown, N. Messinger and G. Carroll, with Messinger & Brown, 29 Broadway, as attorneys.

BROOKLYN, N. Y.—A. Wohl & Co. have been incorporated for $200,000 to manufacture and deal in plumber's supplies, by A. and Y. Wohl and A. Pichenik, with Barnett & Mintz, 44 Court street, as attorneys.

BROOKLYN, N. Y.—Brandis & Co. has been incorporated to manufacture instruments of precision, with 200 shares no par value common stock, by C. H. Colvin, B. R. Goldsborough and M. M. Titterington, with Roosevelt, Kobbe & Thatcher, 46 Cedar street, as attorneys.

BUFFALO, N. Y.—Curtis Bros. Co. plans constructing reinforced concrete warehouse. H. K. Ferguson Co., Cleveland, is general contractor and engineer.

BUFFALO, N. Y.—Buffalo Sintering Co., 86 East Randolph street, Chicago, has let contract for $125,000 sintering plant on South Buffalo street, to John W. Cowper, Fidelity building.

MIDDLEBURG, N. Y.—Middleburg Mfg. Co., Danforth avenue, was damaged by fire recently, with most of loss being confined to equipment. The company recently was organized to manufacture coal gas consumers and auto parts. A 3-story plant is planned for construction this summer.

NEW YORK—Griffin Double Tread Wheel Co. has been incorporated for $250,000 to manufacture and deal in iron and steel and build machinery, by L. F. Sniffin, 27 William street.

NEW YORK—Gotham Wireless has been incorporated for $100,000 to manufacture radio supplies, by R. Byron, E. Alexander, with O. M. Lazarus, 38 Park Row, as attorney.

NEW YORK—S. S. Tool Co. has been incorporated for $15,000 to manufacture machinery and tools, by J. T. Nolan, M. L. Kekeher and V. F. Brown, with Delehanty, Griffin, Hannon & Evans, 115 Broadway, as attorneys.

NEW YORK—Erie Steel Corp. has been incorporated for $20,000 by J. A. Wickham, J. A. O. Franks and E. S. Higgins, with Franks, Wickham & Brown, 25 Broad street, as attorneys.

NEW YORK—Four-in-One-Jack Corp. has been incorporated for $200,000 to manufacture automobile jacks, by C. Rossito, H. Turkel with A. D. Schanzer, 15 Park Row, as attorney.

NEW YORK—Siemund Marine Electric Welding Co. has been incorporated for $600,000 by H. L. Siemund, W. Hedley and W. C. Steiger, with R. Conklin, Pine street, as attorney.

NEW YORK.—A $300,000 factory building will be erected by Chas. Kohler, 601 West Fiftieth street, piano manufacturers. According to plans by Russell G. Cory, 30 Church street, architect, the proposed structure will be 7 stories high, 100 x 150 feet.

NEW YORK—Alca Corp. has been incorporated with 100 shares $100 par preferred stock and 300 shares no par value common, to make stove equipment, by A. Schmidt, C. Hartzelius and A. P. Ingvall, with Stern, Barr & Tyler, 299 Broadway, as attorneys.

CINCINNATI—Sargent & Lundy, Chicago, engineers, are taking bids for constructing Miami Fort power station near here.

CINCINNATI—Ohio Pattern Works & Foundry Co., 2730 Spring Grove avenue, has purchased a site at Spring Grove avenue and Marshall avenues, where it plans a

Bourne-Fuller Service

includes immediate shipment of all Iron and Steel materials from Cleveland and Cincinnati

Warehouses

If you are not receiving our Stock-list we shall be glad to send it to you regularly upon request.

Upson Works

Open Hearth Steel Bars for special uses. Also a complete line of Bolts and Nuts. Prompt Shipments.

THE
BOURNE-FULLER CO.
Iron, Steel
Pig Iron
Coke

CLEVELAND

New York **Chicago**
San Francisco
Cincinnati **Detroit**

plant. J. F. Hansfield, is vice president.

CINCINNATI—The Reliable Pattern Works Co. has been incorporated for $15,000 to manufacture patterns, etc., by Elmer Young, Edward Korten, George E. Kearns, Arthur Kuhn and John Young, Jr.

CLEVELAND—J. E. Christian Co., has purchased a site at 1301-11 St. Clair avenue, where it plans 2-story, 55½ x 120-foot plant and a 3-story steel and concrete warehouse.

CLEVELAND—The Astrup Awning Co., is tearing down its old buildings on West Twenty-fifth street, for constructing 2-story reinforced concrete plant. The company manufactures awnings and awning hardware. Allen & Osborn Co. are engineers.

COLUMBUS, O.—The Columbus Trunk Co. just incorporated, plans plant on Dublin avenue where it purchased a 7½-acre site. E. A. Cole is an official of the company.

NORWOOD, O.—The Cincinnati-Devoe Baked Enameling Co. has been incorporated for $10,000 to manufacture and bake enameled products, by Lawrence J. Funke and Clifford C. Giese, Cincinnati.

SPRINGFIELD, O.—The Springfield Spring Co. plans 60 x 225-foot plant addition. A. G. Samuelson & B. O. Largent have the general contract.

YOUNGSTOWN, O.—The Columbia Bronze Co., recently incorporated, has purchased a foundry site with a partially burned building. Work will start immediately repairing building for operations next fall. The company has temporary quarters where it is manufacturing bronze and alloy castings.

OKLAHOMA CITY, OKLA.—The Sherman Machine & Iron Works Co., 32 East Main street wants presses, drills and drop forging equipment for 2-story plant addition. *Noted June 5.*

ERIE, PA.—The Erie Steam Shovel Co. has been issued a permit for constructing a $100,000 addition to its plants on West Twelfth street. Osborne Engineering Co., Cleveland, is in charge of the work. Plant addition will be 52 x 310 feet and 150 x 215 feet, 2-story, L-shaped.

LUZERNE COUNTY, PA.—Alden Coal Co., has let contract to McClintic-Marshall Co. for a coal breaker.

NEW KENSINGTON, PA.—The Brush Washington Machine Co. has been incorporated for $100,000 by Frank R. Alter, Parnassus, Pa.

OIL CITY, PA.—Citizens Light & Power Co. is doubling capacity of its west end plant. A 7500-horsepower generator unit will be installed.

PALMERTON, PA.—Oscar Heimback, Heimback Motor Co., Fifth street and Franklin avenue, plans 1 and 2-story garage, 44 x 130 feet of brick. M. G. Prutzman, Court House, Mauch Chunk, Pa., is architect.

PHILADELPHIA—Bids were closed June 1 by the Union Tank Car Co., on the erection of a shop at Thirty-second and Ritner streets.

PHILADELPHIA—Bids have just been closed by the Girard College estate, on an addition to its mechanical school, Girard avenue and Corinthian street.

PHILADELPHIA—A contract for the erection of a $60,000 plant addition at Jasper and Butler streets for the Chas. P. Cochrane Co., has been awarded to Wm. Steele & Sons Co., 219 North Broad street.

PHILADELPHIA—Contract for the erection of a $45,000 plant addition, at Sidgley and York streets, for the Worth & Knox Mfg. Co., has been awarded to the Wm. F. Newberry Co., Otis building.

PHILADELPHIA—The Philadelphia Insulated Wire Co., will make alterations at its warehouse, Third street and Florist avenue. The A. Raymond Raff Co., 1635 Thompson avenue, has been awarded the general contract.

PHILADELPHIA—A $60,000 asphalt mixing plant will be erected by the Union Paving Co. at Thirtieth and Walnut streets. Latta & Roberts, Drexel building have been awarded the general contract.

WARREN, PA.—Conewango Auto Repair & Machine Co. has been incorporated for $50,000 to conduct general machine shop business and do repair work, by Peter E. Carlson.

WILKES-BARRE, PA.—Wilkes-Barre Hardware & Stove Co., has been incorporated for $50,000 by Ralph Israel.

WILKES-BARRE, PA.—Shamokin Colliery Co. has been incorporated for $250,000 by Nat. D. Stevens, Nanticoke, Pa.

PROVIDENCE, R. I.—The Acme Tank & Welding Works, 168 Public street, is interested in buying set of bending rolls, 10 feet long and ¼-inch capacity.

ORANGEBURG, S. C.—The Orangeburg Machinery Co., Inc. is in the market for two lathes and a 28-inch plain milling machine.

DALLAS, TEX.—W. G. Davis has been awarded contract for constructing 2-story, brick warehouse, 50x100 feet, at 2526 Myers street for Frank Bono.

DALLAS, TEX.—Pat Gorman is constructing 1-story, 30x100-foot brick warehouse, costing approximately $25,000, at 426 North Central avenue.

DALLAS, TEX.—The Midwest Co., Inc., has been incorporated for $10,000 to manufacture and sell iron and steel. J. N. McCammon, A. D. McCammon and S. J. McFarland are the incorporators.

GOOSE CREEK, TEX.—J. F. Sutterfield will construct plant for manufacture of gas generator for cook and heater stoves.

HOUSTON, TEX.—Gray Tool Co. has been incorporated for $25,000 to manufacture tools and machinery by Ed. J. Drake, Ellsworth Gray and R. A. Mueller.

HOUSTON, TEX.—B. A. Riesner & Son Co. has been incorporated for $40,000 to manufacture steel and iron products, by B. A. Riesner, B. A. Riesner Jr., and Walter Pestell.

HOUSTON, TEX.—The Southern Pacific railroad, soon will be in the market for machinery to equip $500,000 car repair plant to be constructed at the Englewood yards. J. H. Hull is chief engineer. Plants are to be in operation before the end of present year.

MALAKOFF, TEX.—Texas Power & Light Co., Dallas, Tex., is reported as planning construction of power plant here. J. F. Strickland is president.

WHEELING, W. VA.—The Wheeling Stamping Works, Inc., 2119 Main street, manufacturer of metal products, plans rebuilding portion of plant recently damaged by fire.

WHEELING, W. VA.—Trimble & Lutz, 112 Nineteenth street, plan 3-story, 42x120-foot warehouse and office building. George W. Lutz, is manager.

CUDAHY, WIS.—Odry Bros., 1211 Packard avenue, plan purchase of 6-foot lathe, boring machine and emery grinder.

ELKHART LAKE, WIS.—Perfection Specialties Co. has been incorporated by George C. Trotter, vice president of the Lake Laboratories Co. The new company will manufacture phonograph motors and charging outfits for radio batteries.

GREEN BAY, WIS.—Lucia Bros., automobile distributers, have purchased the McGinnis garage on Adams street, 2-story, 66 x 160 feet, and will make extensive alterations, installing a complete machine and repair shop. Possession will be taken June 15.

KENOSHA, WIS.—The Pirsch Motor Co., capital stock $20,000, has been incorporated by John B. Pirsch, William Riddel and Arthur G. Rennel, to take over a partnership business at 263-265 Exchange street, conducting a general machine shop which specializes in automobile, truck, tractor and machinery repairs.

KENOSHA, WIS.—June 12 has been set as the date for closing bids for the construction of a new $1,000,000 senior high school, to be 3-story, 250 x 250 feet, with vocational department. Architect is John D. Chubb, 109 North Dearborn street, Chicago. Ella F. Powers is secretary of the school board.

MILWAUKEE—Grover Co., 3222 Mt. Vernon avenue, is in the market for a lathe and drill press.

MILWAUKEE—A charter has been granted to the Ozone Co. of Milwaukee, capital stock $10,000, to manufacture machinery and electrical devices for cleaning and purifying air and water, by Claus P. Lauson, John E. Schuster and Harry W. Luscher.

OSHKOSH, WIS.—The contract for building a plant, 95 x 250 feet, 2-story, for the newly organized Oshkosh Corrugated Mfg. Co. has been let to Fluor Bros., local contractors. The cost is to be about $65,000 for the first unit. Architect is Edward A. Juul, Sheboygan, Wis.

WAUPUN, WIS.—The Waupun Auto Sales Co. has leased the Warren building at Main and Fond du Lac streets and will remodel and re-equip it as a garage and repair shop. Ervin Burmeister is secretary.

Business in Canada

ST. BONIFACE, MAN.—The Laundry Appliances, Ltd., has been incorporated with $20,000 capital to manufacture washing machines.

ST. JOHN, N. B.—Diamond Battery Co. of Canada, Ltd., has been incorporated to manufacture batteries and electrical appliances, with $150,000 capital, by Gilbert E. Logan, John F. Frauley and Herbert J. Rogers.

LONDON, ONT.—The Caloric Furnaces Co., Ltd., has been incorporated to manufacture furnaces, stoves, ranges, boilers, etc., with $70,000 capital, by Wellington J. Shibley, William Mallough and James H. Bull.

NIAGARA FALLS, ONT.—J. A. Sexauer, Ltd., has been incorporated to manufacture plumbing supplies, with $50,000 capital stock, by John A. Sexauer, Alexander Le Tarbe, New York, and Bernard E. Gerler, Brooklyn, N. Y.

PETERBOROUGH, ONT.—The Canadian General Electric Co. has awarded McLeod Construction Co. contract for extensions to plant. *Noted May 1.*

TORONTO, ONT.—British American Mfg. Co., Ltd., has been incorporated with $40,000 capital stock, to manufacture radio supplies, with Ellis B. Henning, Myrtle Warren, Harold W. Northover and others.

TORONTO, ONT.—Hannon Motors, Ltd., has been incorporated to manufacture and build automobiles, engines, machines, etc., with $40,000 capital stock by James Flynn, Vernon J. Towers and Thomas P. Cusack.

TORONTO, ONT.—Carter Radio Co., Ltd., has been incorporated to manufacture machinery and electrical devices, with $10,000 capital, by M. L. Gordon, I. McL. Macdonnell and John F. Lucas.

MONTREAL, QUE.—Dominion Safety Lock Nut Co., Ltd., has been incorporated to manufacture tools, machinery and implements, with $150,000 capital, by Edgar R. Perkins, Harry R. Snyder and George B. Tonkin.

MONTREAL, QUE.—Bell Mfg. Co. of Canada, Ltd., has been incorporated to manufacture automotive accessories, tools, supplies, etc., with $10,000 capital, by G. C. Papineau, Edmund P. D. Harris and Minnie Bradley.

WABIK METAL

for Vitreous Enameling

STOVE DOOR PANELS
Splasher Backs: Broiler Pans:
Table Tops: Refrigerators:
Signs: and other Flat Work

Wabik Metal Sheets, like all other Mansfield Products, are rolled from our own "Bottom-poured Ingots." They are very low in sulphur.

Other Specialties:

Body Stock; Flat Fender and Hood Stock; Cowl Stock; Radiator Casing Stock; Crown Fender Stock.

METAL FURNITURE SHEETS

PICKELED and ANNEALED ENAMELING STOCK for Kitchen Utensils

MILK CAN STOCK

"*Mansfield*" *Steel* is the ultimate in Sheet Bars and in Sheets. It means satisfaction to all of the many users. Constant study of the needs of users, and continuous application of the results of such study, in the way of improved methods in our plants has established a reputation for unsurpassed reliability.

We invite your inquiries.

SHEET BARS and INGOTS

MANSFIELD SHEET & TIN PLATE COMPANY

MANSFIELD, OHIO

DISTRICT SALES REPRESENTATIVES

The L. D. Rockwell Co., 1106 National City Bldg., New York, N. Y.
Mansfield Sheet & Tin Plate Co., 1372 Wrigley Bldg., Chicago, Ill.
Mansfield Sheet & Tin Plate Co., 12-237 General Motors Bldg., Detroit, Mich.
The L. D. Rockwell Co., 2002 Union Trust Bldg., Cleveland, O.
Wm. L. Hoffman, 1504 West Venango St., Philadelphia, Pa.
Mr. C. H. Beach, 617 Merchants Bank Bldg., Indianapolis, Ind.
Mr. A. P. Grenier, 640 Endicott Bldg., St. Paul, Minn.
Wm. P. Horn Co., 237 Rialto Bldg., San Francisco, Cal.
Wm. P. Horn Co., 301 Kerchoff Bldg., Los Angeles, Cal.
Wm. P. Horn Co., Dekum Building, Portland, Ore.
Wm. P. Horn Co., 1426 L. C. Smith Bldg., Seattle, Wash.

Iron and Steel Scrap Prices

CORRECTED TO TUESDAY NOON GROSS TONS DELIVERED TO CONSUMER

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	13.00 to 14.00
Boston (dealers)	10.00 to 10.50
Buffalo	14.50 to 15.00
Chicago	13.50 to 14.00
Cleveland	14.00 to 14.25
Cincinnati	11.00 to 11.50
Detroit (dealers)	12.50 to 13.00
Eastern Pennsylvania	15.00 to 15.50
New York (dealers)	10.75 to 11.25
Pittsburgh	16.00 to 16.50
St. Louis	12.50 to 13.00
Valleys	15.75 to 16.00
No. 1 railroad steel New York (dealers)	11.50 to 12.00

COMPRESSED SHEETS

Buffalo	14.00 to 14.25
Chicago	10.00 to 10.50
Cleveland	11.75 to 12.00
Detroit (dealers)	10.00 to 10.50
Pittsburgh	15.00 to 15.50
Valley	14.00 to 14.25

BUNDLED SHEETS

Buffalo	8.50 to 9.00
Cincinnati	8.50 to 9.00
Cleveland	11.00 to 11.50
Detroit	9.00 to 9.50
Eastern Pennsylvania	12.00 to 13.00
Pittsburgh	14.00 to 14.50
St. Louis	8.00 to 8.50
Valleys	12.00 to 12.25

SHEET CLIPPINGS, LOOSE

Chicago	7.50 to 8.00
Detroit	7.00 to 7.50

STEEL RAILS, SHORT

Birmingham	13.00 to 14.00
Boston (dealers)	12.00 to 12.50
Chicago	16.50 to 17.00
Cincinnati	15.00 to 15.50
Cleveland (over 6 ft.)	13.00 to 13.50
St. Louis	15.50 to 16.00

STOVE PLATE

Birmingham	14.00 to 15.00
Boston (consumers)	15.00 to 15.50
Buffalo	15.00 to 15.50
Chicago	15.50 to 16.00
Cincinnati (net tons)	8.50 to 9.00
Cleveland	13.25 to 13.50
Detroit (net ton) dealers	12.00 to 12.50
Eastern Pennsylvania	14.00 to 14.50
New York (dealers)	11.50 to 12.00
Pittsburgh	13.50 to 14.00
St. Louis	15.00 to 15.50

LOW PHOSPHORUS

Buffalo	18.00 to 18.50
Cincinnati	13.00 to 13.50
Eastern Pennsylvania	19.00 to 20.00
Pitts. billet and bloom crops	21.50 to 22.00

SHOVELING STEEL

Chicago	13.25 to 13.75
Pittsburgh	13.50 to 14.00
St. Louis	12.50 to 13.00

KNUCKLES, COUPLERS, SPRINGS

Chicago	16.50 to 17.00
Eastern Pennsylvania	18.00 to 19.00
Pittsburgh	19.50 to 20.00
St. Louis	15.75 to 16.25

FROGS, SWITCHES, GUARDS

Chicago	13.50 to 14.00
Eastern Pennsylvania	15.00 to 15.50
St. Louis	13.00 to 13.50

BOILER PLATE, CUT

St. Louis	5.50 to 6.00

ANGLE BARS—STEEL

Chicago	15.75 to 16.25
St. Louis	13.50 to 14.00

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	11.00 to 12.00
Boston (dealers)	12.00 to 12.50
Buffalo	12.50 to 13.00
Cleveland, No. 1	11.50 to 12.00
Chicago, No. 1	13.25 to 13.75
Chicago, No. 2	13.50 to 14.00
Cincinnati, No. 1	10.00 to 10.50
Detroit, No. 2	12.50 to 13.00
Eastern Pennsylvania	17.50 to 18.00
New York, No. 1 (dealers)	15.00 to 15.50
Pittsburgh, No. 1	13.50 to 14.00
Pittsburgh, No. 2	16.00 to 16.50
St. Louis No. 1	10.50 to 11.00
St. Louis, No. 2	11.50 to 12.00

WROUGHT PIPE

Boston (dealers)	9.50 to 10.00
Buffalo	11.00 to 12.00
Eastern Pennsylvania	15.00 to 16.00
New York (dealers)	10.00 to 10.50

YARD WROUGHT

Boston	12.00 to 12.50
Eastern Pennsylvania	16.00 to 17.00

CITY WROUGHT

New York, long	13.50 to 14.00

BUSHELING

Buffalo	13.50 to 14.00
Chicago, No. 1	10.75 to 11.25
Chicago, No. 2	8.25 to 8.75
Cincinnati, No. 1	9.00 to 9.50
Cleveland, No. 1	11.50 to 12.00
Cleveland, No. 2	9.25 to 9.50
Detroit, No. 1	10.50 to 11.00
Detroit, No. 2 (new)	10.00 to 10.50
Detroit, No. 2 (old)	9.00 to 9.50
Eastern Pennsylvania	14.00 to 15.00
Pittsburgh, No. 1.	13.50 to 14.00
St. Louis, No. 1	11.50 to 12.00

MACHINE SHOP TURNINGS

Birmingham	5.00 to 6.00
Boston (dealers)	7.00 to 7.50
Buffalo	10.00 to 10.50
Chicago	7.50 to 8.00
Cincinnati	8.00 to 8.50
Cleveland	12.00 to 12.25
Detroit (dealers)	9.00 to 9.50
Eastern Pennsylvania	12.00 to 12.50
New York (dealers)	8.50 to 9.00
Pittsburgh	13.00 to 13.50
St. Louis	5.50 to 6.00
Valleys	11.75 to 12.00

CAST IRON BORINGS

Birmingham (chemical	15.50 to 16.00
Birmingham (plain)	6.50 to 7.00
Boston (chemical)	8.00 to 9.00
Boston (dealers)	7.00 to 7.50
Buffalo	12.50 to 13.00
Chicago	10.00 to 10.50
Cincinnati	8.50 to 9.00
Cleveland	12.75 to 13.00
Detroit (dealers)	10.00 to 10.50
Eastern Pennsylvania	13.00 to 13.50
Eastern Pennsylvania	12.50 to 13.00
New York (dealers)	8.50 to 9.00
Pittsburgh	14.00 to 14.50
St. Louis	8.25 to 8.75
Valleys	13.25 to 13.50

MIXED BORINGS AND TURNINGS
For blast furnace use

Boston (dealers)	6.50 to 7.00
Cleveland	12.75 to 13.00
Detroit (dealers)	10.00 to 10.50
Eastern Pennsylvania	11.00 to 11.50
New York (dealers)	8.25 to 8.75

IRON AXLES

Birmingham	20.00 to 20.50
Boston (consumers)	31.00 to 32.00
Buffalo	25.00
Chicago	26.50 to 27.00
Cincinnati	18.00 to 18.50
St. Louis	26.00 to 26.50
New York (dealers)	23.00 to 24.00
Eastern Pennsylvania	20.00 to 22.00

IRON RAILS

Buffalo	19.00 to 20.00
Chicago	17.50 to 18.00
Cincinnati	10.50 to 11.00
St. Louis	10.50 to 11.00

PIPES AND FLUES

Chicago	9.50 to 10.00
Cincinnati	8.00 to 8.50
Cleveland	10.00 to 10.25
St. Louis	6.50 to 7.00

RAILROAD GRATE BARS

Buffalo	15.00 to 15.50
Chicago	15.00 to 15.50
Cleveland	13.25 to 13.50
Eastern Pennsylvania	14.00 to 14.50
New York (dealers)	13.00 to 13.50
St. Louis	14.00 to 14.50

FORGE FLASHINGS

Boston (dealers)	8.00 to 8.50
Chicago	9.50 to 10.00
Cleveland (under 10 in.)	11.50 to 12.00
Cleveland (over 10 in.)	8.50 to 9.00
Detroit (dealers)	9.00 to 9.50

FORGE SCRAP

Boston (dealers)	7.50 to 8.00
Chicago	16.50 to 17.00
Eastern Pennsylvania	13.00 to 13.50

ARCH BARS AND TRANSOMS

Chicago	19.00 to 19.50
St. Louis	17.50 to 18.00

ANGLE BARS—IRON

Chicago	18.00 to 18.50
St. Louis	17.00 to 17.50

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	8.00 to 8.50
Buffalo	14.50 to 15.00
Chicago	11.50 to 12.00
Cleveland	12.50 to 13.00
Eastern Pennsylvania	13.50 to 14.00
Pittsburgh	15.00 to 15.50
St. Louis	9.00 to 9.50

STEEL CAR AXLES

Birmingham	17.00 to 18.00
Boston (consumers)	19.00 to 20.00
Buffalo	19.00 to 20.00
Chicago	18.50 to 19.00
Cleveland	17.75 to 18.25
Eastern Pennsylvania	19.00 to 20.00
Pittsburgh	19.50 to 20.00
St. Louis	16.25 to 16.75

SHAFTING

Boston (consumers)	19.00 to 20.00
Chicago	20.00 to 20.50
Eastern Pennsylvania	20.00 to 22.00
New York (dealers)	17.00 to 17.50
St. Louis	19.00 to 19.50

Iron Foundry Scrap

CAR WHEELS

Birmingham, tram car	16.00 to 17.00
Birmingham, iron	15.00 to 16.00
Boston (consumers)	19.00 to 19.50
Buffalo	17.50 to 18.00
Chicago, iron	16.00 to 16.50
Cincinnati	10.50 to 11.00
Eeastern Pennsylvania	17.50 to 18.00
New York iron (dealers)	14.50 to 15.00
Pittsburgh, iron	16.00 to 16.50
Pittsburgh, steel	19.50 to 20.00
St. Louis, iron	14.00 to 14.50

NO. 1 CAST SCRAP

Birmingham, cupola	17.50 to 18.00
Boston (consumers)	19.50 to 20.00
Buffalo	16.50 to 17.50
Chicago, cupola	17.50 to 18.00
Cincinnati No. 1 machinery cupola (net tons)	15.50 to 16.00
Cleveland, cupola	19.00 to 19.50
Detroit (net tons) (dealers).	15.50 to 16.00
Eastern Pennsylvania, cupola.	17.50 to 18.50
New York, cupola (dealers).	14.00 to 14.50
Pittsburgh, cupola	18.00 to 18.50
San Francisco	25.00 to 26.00
St. Louis, railroad	18.00 to 18.50
St. Louis, agricultural	18.00 to 18.50
Valleys	19.50 to 20.00

HEAVY CAST

Boston (consumers)	15.50 to 16.00
Buffalo (breakable)	15.00 to 15.50
Cleveland	12.25 to 12.50
Detroit (automobile) (net ton)	16.50 to 17.00
Eastern Pennsylvania	15.50 to 16.00
New York (dealers)	13.00 to 14.00
Pittsburgh	15.50 to 16.00

MALLEABLE

Boston (railroad)	16.50 to 17.00
Buffalo	19.00 to 19.50
Chicago, railroad	17.50 to 18.00
Chicago, agricultural	16.50 to 17.00
Cincinnati, agricultural	10.50 to 11.00
Cincinnati, railroad	15.00 to 15.50
Cleveland, agricultural	15.75 to 16.00
Cleveland, railroad	17.50 to 18.00
Detroit (dealers)	16.50 to 17.00
Eastern Pennsylvania, railroad	15.50 to 16.50
Pittsburgh, railroad	15.50 to 16.00
St. Louis, agricultural	14.50 to 15.00
St. Louis, railroad	14.75 to 15.25

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham, tram car	15.00 to 15.50
Boston (dealers)	14.00 to 14.50
Chicago	14.75 to 15.25
Cleveland	15.50 to 16.00
Detroit	12.00 to 12.50
Eastern Pennsylvania	17.00 to 17.50
New York (dealers)	14.00 to 14.50
Pittsburgh district	17.00 to 17.50
St. Louis	14.75 to 15.25

LOCOMOTIVE TIRES

Chicago	17.00 to 17.50
St. Louis	14.00 to 14.50

LOW PHOSPHORUS PUNCHINGS

Chicago	15.50 to 16.00
Eastern Pennsylvania	18.00 to 19.00
Pittsburgh	20.00 to 20.50

BROWNHOIST

Complete Power Plant Handling Equipment

Many power plants have cut the cost of power production 10 to 30% with proper handling equipment.

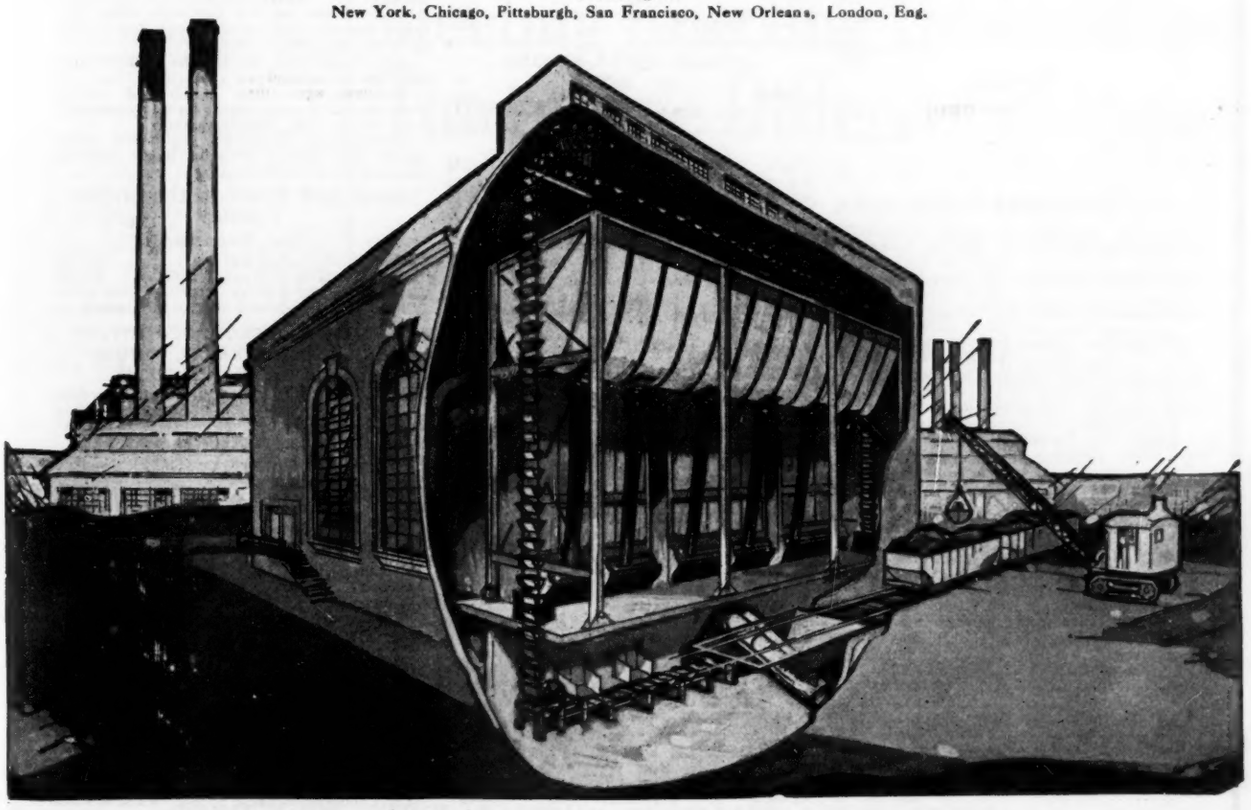
Brownhoist makes handling equipment for every power plant requirement—belt and chain conveyors, concrete storage bins, crushers, larries, locomotive cranes, buckets, etc.

And every unit is designed and built for continuous, trouble-free performance. On each operation from the time coal is unloaded until the ashes are hauled away, Brownhoist equipment insures the lowest possible handling cost.

The wide experience of our engineers will help you cut your handling costs. Let them advise you.

The Brown Hoisting Machinery Co., *Cleveland, Ohio*

Branch Offices:
New York, Chicago, Pittsburgh, San Francisco, New Orleans, London, Eng.



Iron and Steel Prices

Iron Ore

LAKE SUPERIOR ORES
Per Gross Ton Lower Lake Ports

Old range bessemer, 55 per cent iron..$5.65
Mesabi bessemer, 55 per cent iron.... 5.40
Old Range nonbessemer, 51½ per cent iron 4.90
Mesabi nonbessemer, 51½ per cent iron 4.75

EASTERN LOCAL ORES
Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 53 to 63 per cent ..... 9.00 to 10.50
Copper free low phosphorus 53 to 65 per cent ..... 12.50 to 14.50

FOREIGN IRON ORE
Cents per unit, c.i.f. Atlantic ports

Spanish low phosphorus, 52 to 54 per cent ..... 9.00 to 9.50
Algerian low phosphorus, 52 to 54 per cent ..... 10.00 to 10.50
Swedish and Norwegian low phosphorus, 68 per cent.. 11.00 to 11.50
Swedish foundry or basic, 66 to 68 per cent ..... 9.00 to 10.00
Spanish foundry or basic, 50 to 54 per cent ..... 8.00 to 9.00
Alegerian foundry and basic, 50 to 54 per cent ..... 8.00 to 9.00

Manganese Ore

Prices do not include duty at rate 1 per cent per pound of metallic manganese contained.

Brazilian, minimum 47 per cent....nominal
Indian, minimum 47 per cent.....
....nominal 41 to 42 cents c.i.f. tidewater
Caucasian, 53 to 55 per cent.....
.....Ordinary, 43 cents c.i.f. tidewater
.....Washed, 46 cents c.i.f. tidewater

Fluor Spar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton $19.00 to 22.50
Washed gravel, imported duty paid eastern tidewater, per gross ton ..... 20.60 to 21.10

Rivets

Structural rivets, C. L. Pitts.. 2.50c to 2.60c
Structural rivets L. C. L. Pittsburgh ..... 2.65c to 2.70c
Rivets, 7/16-in. and smaller.....
.....70 and 10 off to 70, 10 and 10 off

Nuts and Bolts

(Up to 1¾ and 1⅓ inches inclusive)

Hot pressed square or hexagon blank .....$5.00 to 4.75 off list
Hot pressed square or hexagon tapped .....$5.00 to 4.75 off list
Cold punched square or hexagon blank .....$4.50 to 4.25 off list
Cold punched square or hexagon.... .....$4.50 to 4.25 off list
Cold punched semifinished hexagon nuts ⅝-inch and larger .....80 and 10 off
Cold punched semifinished hexagon nuts 9/16-inch and smaller ....80, 10 and 5 off
Price f.o.b. Pittsburgh, packages of 50.

CARRIAGE BOLTS
(¾ x 6 inches, smaller and shorter)

Rolled thread .....60 and 20 off
Cut thread .....60 and 10 off
Larger and longer.....60 and 10 off

MACHINE BOLTS
(¾ x 4 inches, hot pressed nuts)

Rolled thread .....60, 20 and 10 off
Cut thread .....60 and 20 off
Larger and longer .....60 and 20 off
(All sizes cold punched nuts)
Cut thread .....50,10 and 10 off
Lag screws .....65 and 20 off
Plow bolts Nos. 1, 2 and 3 heads.. .....50 and 10 off
4 to 10 heads.....50-10 + 20 off
Flat and round head stove bolts..... .....80,10 and 5 off
Other stove bolts .....80, 10 and 5 off
Tap bolts .....30 off
Bolt ends with hot pressed nuts..... .....60 and 20 off
Bolt ends with cold punched nuts.... .....50, 10 and 10 off
Blank bolts .....60 and 20 off
Rough stud bolts with nuts (250 pieces or more of a size)..... ....45, 10 and 5 off

Washers

Wrought .....$5.25 to $5.75 off

Steel Pipe

(Effective April 19, 1923)
Pittsburgh basing discounts, jobbers' carloads.

	Black	Galvanized
Butt Weld		
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½
Lap Weld		
2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½
REAMED AND DRIFTED		
Butt Weld		
1 to 3-inch	60	48½
Lap Weld		
2-inch	53	41½
2½ to 6-inch	57	45½
EXTRA STRONG—PLAIN ENDS		
Butt Weld		
⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½
Lap Weld		
2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	49	32½
11 and 12-inch	48	31½
DOUBLE EXTRA STRONG		
Butt Weld		
½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½
Lap Weld		
2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

Wrought Iron Pipe

(Effective Jan. 23, 1923)
Pittsburgh basing discounts, jobbers' carloads

THREADS AND COUPLINGS		
Butt Weld		
¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13
Lap Weld		
1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
3 to 6-inch	28	13
7 to 12-inch	26	11
PLUGGED AND REAMED		
Two points less than above		
EXTRA STRONG, PLAIN ENDS		
Butt Weld		
¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14
Lap Weld		
2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2
DOUBLE EXTRA STRONG		
Butt Weld		
½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39
Lap Weld		
2 and 2½ inches	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

Boiler Tubes

L. C. L. discounts. C. L. 4 points larger

STEEL (Lap Welded)
(Effective April 19, 1923)

2 and 2¼-inch ..... 23 off
2½ and 2¾-inch ..... 33 off
3-inch ..... 36 off
3¼ to 3¾-inch .....38½ off
4 to 13-inch ..... 42 off

CHARCOAL IRON
(Effective April 12, 1923)

1½-inch ..... +22
1¾-inch ..... +12
2 and 2¼-inch..... + 2
2½ to 3-inch 3
3¼ to 4½-inch..... 5

SEAMLESS COLD DRAWN
(Effective April 19, 1923)

1-inch ..... 51 off
1¼ and 1½-inch ..... 43 off
1¾-inch ..... 27 off
2 and 2¼-inch ..... 18 off
2½ and 2¾-inch..... 28 off
3 and 3¼-inch ..... 32 off
3½ and 3¾-inch ..... 33 off
4-inch ..... 37 off
4½ and 5-inch..... 29 off

SEAMLESS HOT ROLLED

3 and 3¼-inch ..... 34 off
3½ and 3¾-inch..... 35 off
4-inch ..... 39 off

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per net ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts

Carbon, 0.10 to 0.20 per cent..... 83 off
Carbon, 0.30 to 0.40 per cent..... 81 off
Carbon 0.40 to 0.50 per cent.....net price
Plus differentials and extras for cutting.

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES
(Effective April 19, 1923)

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
2-inch	12-gage	15c
2-inch	12-gage	15c
2-inch	11-gage	16c
2-inch	10-gage	17c
2¼-inch	12-gage	17c
2¼-inch	11-gage	18c
2¼-inch	10-gage	20c
3-inch	7-gage	35c
1½-inch	9-gage	15c
5¾-inch	9-gage	55c
5½-inch	9-gage	57c

Plus usual extras for forming and for long lengths.

Hot Rolled Alloy Steels

Prices per pound, Pittsburgh

S. A. E. Series—
2300 (3½ per cent nickel)... 5.00c
3100 (nickel chromium)..... 4.00c
6100 (chrome vanadium) 4.75c
6100 (chrome vanadium spring) 4.50c
9250 (Silico manganese spring) 4.00c to 4.25c